A New Quality Theory For UK Private Housebuilding Based On Definable Quality Principles, Impression Management and The Control Of Cognitive Dissonance

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Abstract

A New Quality Theory For UK Private Housebuilding Based On Definable Quality Principles, Impression Management and The Control Of Cognitive Dissonance.

This is an investigation into the concept of quality and how it relates to the private housebuilding industry. The aim of which was to find out why the house buying public were not getting the level of quality and thus end product they wanted. It considers the classic quality theories; how they are applied to the manufacturing industries, service industries and the commercial construction industry and their lack of transferability to the private housebuilding industry. The research considers the measurement and management of quality, and how strategies such as Total Quality Management have equated quality to conformance to customer requirements and therefore customer satisfaction.

The research employs both qualitative and quantitative methods, using a combination of questionnaires and semi-structured interviews for data collection. Case studies are then used to analyse the current approaches to quality from a leading private housebuilding company, comparing this with what has been achieved by a leading company in the commercial sector and the quality approach used by a pioneering American housebuilder.

As the research progressed it gave rise to several conceptual models of the quality process, these models help to explain why quality has not always been achieved using these quality systems. Combining the disciplines of quality management and applied psychology and based on quality concepts from other sectors and their analysis the research has combined them to produce a new quality theory and model for the UK housebuilding industry. The theory and model are distinctive by addressing the principles of *Cognitive Dissonance* and incorporating *Impression Management* to improve the representational accuracy of definable quality achieved in customer satisfaction surveys

Dedication

This thesis is dedicated to the two people that made it possible: My wife Helena and my supervisor Dr. John Hinks.

Helena, for her support and encouragement over a very long period of time. Helena never gave up on me and has in her words 'waited for me' whilst I made this long and tortuous journey in the hope that we could one day have our lives back!

John without whom the journey would never have been started and certainly never have been finished. I now count John and Ruth as good friends; I have seen their children grow up from being primary and pre-primary school children into two young ladies and a young man, yes it has been that long!

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I would like to thank Ron Diehm and all at Estridge Homes for the friendly and co-operative way they treated me when I made my trip to Carmel Indiana to see them. My thanks also to David Fitzpatrick of the RICS Foundation for providing the travel grant that allowed me to make the trip.

My thanks to Mace and Haroona Irshad for her time and for the information for the section on a commercial company's quality system.

And finally all those homeowners who did fill in my questionnaires and agreed to be interviewed for this study, I hope that next time you buy a new house your help has made a difference.

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CHAPTER 1 - INTRODUCTION

1.1 The Aims and Objectives of this thesis

The main aim of this research project was to investigate the level of achievement of quality in new build UK private housing. The author of this thesis had experience of both new build private and social housing, and noted that the social sector always seemed to produce a better quality end product than the private sector. The author of this thesis did had some pre-conceived ideas about why this was the case, but felt that an in depth research project was the only way to investigate the matter.

This required the formulation of some specific objectives and a hypothesis. As with many research projects the objectives have been written and re-written as the work has progressed. Research by its very nature must present a set of moveable goal posts and only towards the culmination of the project can the final objectives be confirmed and verbalised.

The main objectives of this research were: -

i. To assess the level of quality achieved by the UK house building industry from the point of view of the customer.

ii. To establish the basis for a set of customer derived criteria for the assessment of the quality of the completed house.

iii. To produce some conceptual models that demonstrate the construction processes and show the factors that affect the achievement of acceptable levels of quality.

iv. To investigate what lessons could be learned from other sectors and academic disciplines in how they have dealt with quality, its definition its delivery

1.2 The Research Question and Hypotheses

The main research issue to be considered within this document is that as the evidence has shown that in the UK private housing sector the buyer does not get the quality of new home they want, the question for this research is why?

This question has given rise to three main hypothesises:

i. That the UK private house building industry knows about the problem but due to the buoyant nature of the domestic market chooses not to investigate the flawed systems used to produce the houses, thus doing nothing about the problem.

ii. That the UK private housing industry and others involved in quality measurement were asking technically based questions without ensuring that the interviewees had common ground with the interviewers on the basis for and language used in the questions asked.

iii. That high levels of customer satisfaction and thus definable quality can be achieved by the industry firstly investigating what it is that their customers want and then by implementing these customer derived criteria through a robust management system to deliver on these criteria in the final finished product.

1.3 Summary of the Chapters of the Thesis

This thesis will chart the journey the author made into quality. To help the reader a Thesis map is included in this chapter and the colour codes used on the map are repeated at the start of the relevant chapters. The journey into quality begins with a review of the relevant literature, through the various books and papers written about quality.

In Chapter 2 quality concepts and in Chapter 3 quality systems; giving rise to Conceptual Model A of how Total Quality Management would function with the full support of all parties to a construction project. It then in Chapter 4 proceeds to look at customer satisfaction, what it is and how it can be measured generally.

The thesis in Chapter 5 then considers quality in the UK construction industry, the impact of government policies and quality initiatives. Moving on then into Chapter 6 that looks specifically at quality and the UK private housebuilding industry, as a result of this study the thesis proposes the second Conceptual Model B that describes the current way in which the industry has traditionally responded to quality issues.

Chapter 7 looks at the design of the investigation, and due to the evolutionary nature of the research design, sets out the parallel strands of the research the interview and survey work and the case studies. This chapter also takes the reader through the Formative Survey, considers three additional Conceptual Models B1; B2 and B3 that relate directly to hypothesis iii. It then moves back into literature considering questionnaire design and finally discussing both the positive and negative aspects of this first survey.

The thesis then looks at the taped semi-structured interview stage, how the pro-forma was arrived at, the use of visual aids to assess the interviewee's knowledge of technical aspects and also their views on various elements of their new house. It then moves into the Pilot for the Large Scale survey, and the design of the final survey instrument.

Chapter 8 contains the analysis of the Formative Survey, the Taped semi-Structured Interviews and the Large Scale Survey. Chapter 9 discusses factors that affect surveys and the results from the previous chapter, introducing the psychological

concepts of Cognitive Dissonance and Impression Management. It delves into the relevant applied psychological literature on these concepts and shows how these psychological concepts can affect and modify behaviour.

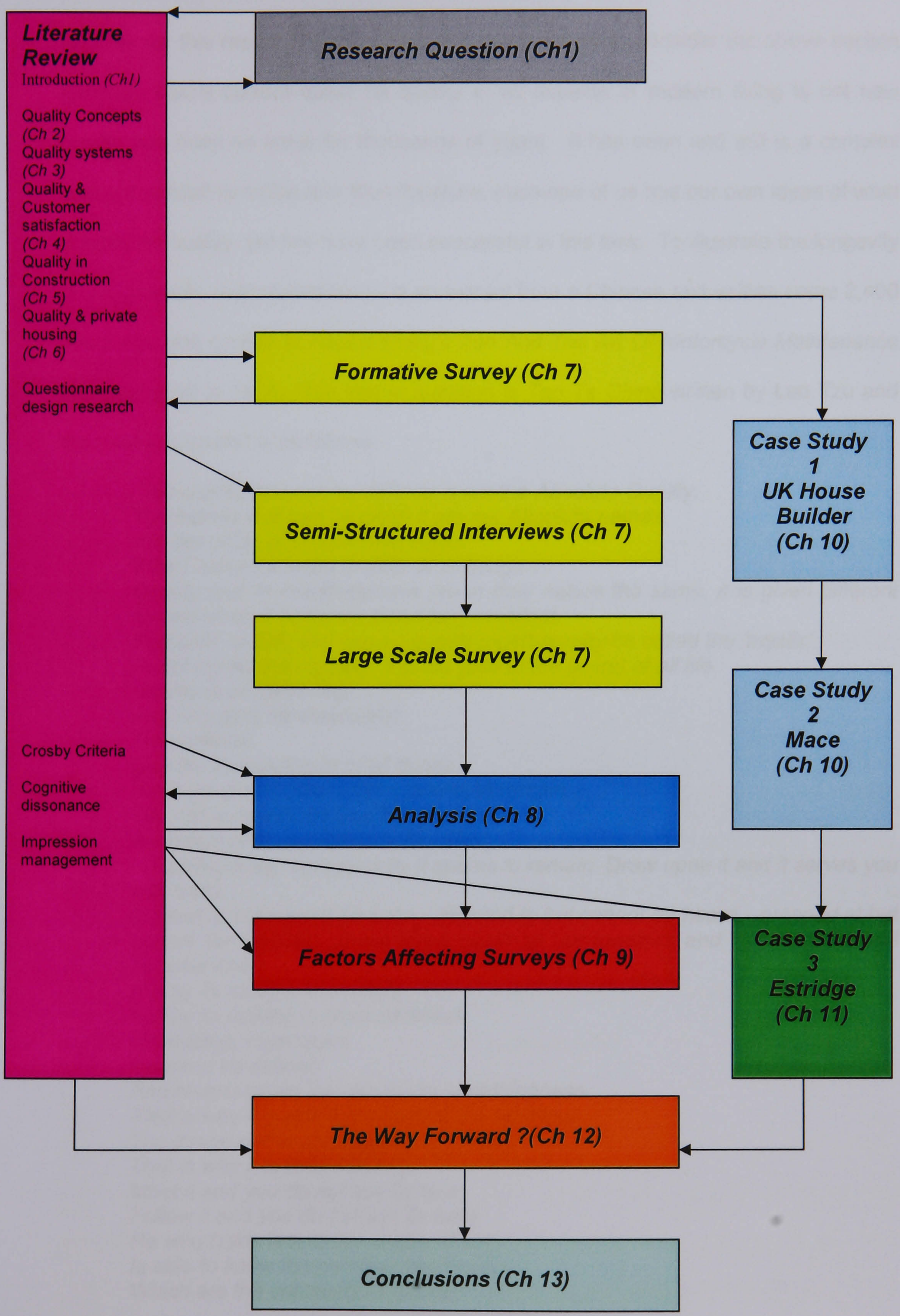
Chapters 10 and 11 introduce the parallel strand previously mentioned; they chart three case studies. Firstly Chapter 10 looks at a major UK private house builder and their QA scheme which gives rise to Conceptual Model C. Secondly looking at a major UK contracting company and their partnering approach to quality management giving rise to Conceptual Model D. Chapter 11 looks at an American house builder and their innovative quality management system that forms a partnership with their customers, this gives rise to Conceptual Model E.

Chapter 12 links together the parallel strands, showing why the results detailing the achievement of quality in new housing gained from the Large Scale Survey and any other survey will be flawed, highlighting the importance of the customer derived statements of what they want from the new house buying experience. It is a discussion/comparative analysis of theories, field evidence and existing evidence uncovered. The chapter also shows how the different approaches to quality control during construction produce vastly different quality end products. It then proposes the new theory and Conceptual Model F illustrating the theory.

Chapter 13 sets out the conclusions of the thesis. It restates the results and emerging issues from the thesis, it demonstrates that the thesis addresses all the objectives set out in the introduction.

This chapter confirms the contribution to knowledge that the thesis makes and demonstrates that the three hypotheses are in fact proven.

1.4 Thesis Map



1.5 What Is Quality?

In order for this research to be possible it is necessary to consider the above section heading. Man's current quest for quality in all aspects of modern living is not new quality has been an issue for thousands of years. It has been and still is a complex concept difficult to define and thus measure, each one of us has our own ideas of what constitutes quality, yet few have been successful in this task. To illustrate the longevity of the problem, reproduced below is an extract from a Chinese text written some 2,400 years ago and quoted in Robert Pirsig's *Zen And The Art Of Motorcycle Maintenance* first published in 1974. The text in question is *Tao Te Ching* written by Lao Tzu and the passage quoted is as follows:

"The quality that can be defined is not the Absolute Quality.
The names that can be given it are not Absolute names.
It is the origin of heaven and earth.
When named it is the mother of all things….
Quality and its manifestations are in their nature the same. It is given different names when it becomes classically manifest.
Romantic quality and classic quality together may be called the 'mystic'.
Reaching for the mystery, it is the gate to the secret of all life.
Quality is all pervading.
And its use is inexhaustible!
Fathomless!
Like the fountainhead of all things…
Yet crystal clear like water it seems to remain.
I do not know whose Son it is.
An image of what existed before God.
…Continuously, continuously it seems to remain. Draw upon it and it serves you with ease…
Looked at but cannot be seen…listened to but cannot be heard…grasped at but cannot be touched…these three elude all our inquiries and hence blend and become one.
Not by its rising is there light.
Not by its sinking is there darkness.
Unceasing, continuous
It cannot be defined
And reverts again into the realm of nothingness
That is why it is called the form of the formless
The image of the nothingness
That is why it is called illusive
Meet it and you do not see its face
Follow it and you do not see its back
He who holds fast to the quality of old
Is able to know the primeval beginnings
Which are the continuity of quality"

What then is the relevance of this quotation? It may have been written 2,400 years ago, but quality is still the problematic concept that it was then.

1.5.1 Definable Quality

The above quotation has become more relevant to the author the further along the research journey this project has gone. The quotation says that absolute quality cannot be defined and this is true in the strict grammatical sense, as definitions tend to be firmly fixed. It also says that the quality that can be defined is not an absolute, due to its subjective nature quality can only be defined within a fixed situation in a particular moment in time. The quotation refers to quality as *"unceasing, continuous, the continuity of quality"*, this fits in very well with the current thinking on quality in the total quality management (TQM) train of thought. Crosby in *Quality Without Tears* says that the first Absolute of Quality Management is:

> *"QUALITY HAS TO BE DEFINED AS CONFORMANCE TO REQUIREMENTS, NOT GOODNESS."* Crosby (1984)

This again fits in with the 2,400 year-old concept of quality being a continuous concept. What meets requirements today may not meet requirements tomorrow. It can, therefore, be considered that in accordance with the 2,400 year-old writings it is impossible to define and achieve Absolute Quality. This is perhaps the most important theme to emerge from this research, the realisation that achieving quality is a constantly changing process where the goals are not fixed.

It is this fact alone that dictates that in order to consider quality and quality improvements in new private housing in the UK, we must adopt the Crosby/TQM definition of quality that quality relates to requirements and not just to goodness. This definition has some advantages in that it makes the achievement of quality possible in all manufacturing and service industries. It may also help to explain why many

traditional industries that had always been considered to produce 'quality' products have now, even though the products are still the same 'quality', failed to remain profitable and ultimately closed down. It would appear that the key to achieving and maintaining quality in any industry is constant evolution of products to ensure that they meet the ever-changing requirements of the customers. This again is one of the key concepts of TQM; Bank in *The Essence of Total Quality Management* comments that:

> *"Total quality management is focused on the requirements of the customer. On the personal front people only go back to restaurants that fully satisfy them and they shop regularly at stores that meet their needs. They fly on airlines that provide friendly, efficient service. Industrial customers, likewise have a set of expectations and requirements that must be met for the supplier to win repeat business."* Bank (1992)

In order to achieve and maintain fulfilling customer requirements successfully, the industry must have a customer feedback mechanism/loop to assess the needs of their customers. There are cases where the industry works in a one to one situation with a single customer where the customer's requirements can be negotiated between the two parties. Even in this situation there is still a need for a feedback loop from customer to builder to discover whether or not the company has in fact achieved what was agreed at the start of the project. Has the project team delivered all of the agreed client requirements in the finished product and thus achieved the level of conformance to these requirements that in TQM is equated with 'quality'.

1.6 Summary

This introduction has set out the context in which this research has considered the concept known as quality. The author echoes much of, Phaedrus's (Pirsig's other self in Zen and the Art of Motorcycle Maintenance) frustrations but hopefully not the resulting breakdown encountered in the early days of trying to understand the concept

of quality Pirsig (1974). This document will attempt to convey to the reader the length, breadth, twists and turns of the journey that has resulted in this thesis.

[redacted] QUALITY CONCEPTS

2.1 Introduction

The aim of this chapter is to map out quality concepts from the post World War II era to date, and to consider the work of the quality champions. This chapter looks amongst others at the work of Deming and Juran, and the author of this thesis would like to acknowledge the source for this historical work where not specifically cited as being *The Essence of Total Quality Management (1992)* by John Bank. The chapter outlines the importance of quality in terms of manufactured goods and how since WWII the customer has found that they have increasing power in terms of what the can expect in goods. It reinforces the definition first proposed in the introduction that quality must be seen as being *"conformance to customer requirements"* Crosby (1984) It highlights different approaches to achieving quality and propounds the basis of quality as being part of the culture of an organisation if it is to survive.

2.2 The Historical Background.

Quality in its wider context has been a well researched and written about concept for the last sixty years, Deming and Juran are now both well known for their pioneering work on quality improvement systems. Both though, had similar experiences in their own country, America, in that their doctrines were not accepted in a booming post war economy. Industry seemed to be quite happy in its old ways feeding a seemingly burgeoning market with consumer goods, without any concerns about quality.

It was General MacArthur, Supreme Commander of the Allied Powers in Japan following their defeat in 1945, who requested Dr. William Edwards Deming to assist in the production of a census as part of the rebuilding of post war Japan. Deming, who

was a trained statistician, had worked for the Department of Agriculture in the U.S. and had been in charge of the 1940 census, thus he had the 'right' credentials for this job.

2.2.1 Deming and Quality as a Variation from the Planned Norm

Whilst Deming was working in Japan, a group of Japanese scientists and engineers who had formed a group called the Union of Japanese Scientists and Engineers (JUSE) contacted him with a view to him giving a series of lectures on his ideas on quality control and improvement. JUSE had been formed to help to create the right kind of conditions to enable Japan's decimated industrial base to be regenerated. JUSE met with Deming in 1950 and he promoted his idea of statistical process control (SPC), which he had developed from the concept of statistical quality control (SQC) devised by Dr. Walter Shewhart at the Hawthorne plant of Western Electric.

SQC as developed by Shrewhart was a measurement tool whereby each stage of the whole of a production process could be monitored/measured and any deviation from statistically acceptable norms could be detected. These deviations from the statistical norm would indicate that in a normally constant process some part of either the material flow or manufacturing process was faulty and thus responsible for the deviation. Thus a mathematical/statistical link was formed linking quality with variation from planned norms. Deming took this fairly complicated mathematical procedure and in Hutchin's words when talking about Deming's work in Japan post world war two: *"Dr Deming's contribution was to help them cut through the academic theory, to present the ideas in a simpler way which could be meaningful right down to production worker levels "* Hutchins (1990)

SPC the simplified version of SPQ, Deming maintained could be used for problem solving and quality improvement in any process and not just in manufacturing. It was still based on Shewhart's statistical precept that variation from the required norm has

only a 15% chance of being the responsibility of the operator doing the work. The other 85% chance is the responsibility of management and as such could be controlled by training and organisational skills. What the process was trying to do was identify areas of variability in what should be a constant process and thus identify potential quality variations. This process enabled management to control the quality of an end product at each and every stage throughout the manufacturing process. Deming is reported to have told the assembled audience at the 1950 lecture that if they followed his advice, Japan would be so competitive that industry in the rest of the world would need protection in order to survive.

2.2.2 Juran and the Practical Approach to Quality

Dr Joseph Juran spoke to JUSE three years later, after the publication of his book *'Quality control handbook'*. His approach was one of ensuring that the whole of the working process was as near to the optimum as was possible. It has been said that Juran took a practical approach towards achieving quality whilst Deming took a more philosophical one.

History shows that Deming and Juran were both right, quality and cost were the secret to a booming manufacturing industry and when the western economies woke up to what was happening it was 1980. A researcher for NBC in America, who was looking into why Japan was such a threat to American industry, came across Deming's name and work in Japan. Almost overnight both Deming and Juran were hailed as quality 'gurus'. Both men came out of retirement to give to a now interested American industry the same message that it had rejected 40 years earlier and the message has now spread worldwide. The modern quality revolution was born; the term quality assurance entered every day parlance. This is not to say that quality did not exist previously, Phaedrus maintained that the personal constructs of *quality* are ever present and an

important part of every day life, he mused about what would happen if he removed what he thought was *quality* from everyday life:

> *"Next he subtracted Quality from the marketplace and predicted the changes that would take place. Since quality of flavor would be meaningless, supermarkets would carry only basic grains such as rice, cornmeal, soyabeans and flour; possibly also some un-graded meat, milk for weaning infants and vitamin and mineral supplements to make up deficiencies. Alcoholic beverages, tea, coffee and tobacco would vanish. So would movies, dances, plays and parties. We would all use public transportation. We would all wear G.I. shoes.*
>
> *A huge proportion of us would be out of work, but this would probably be temporary until we relocated in essential non-Quality work. Applied science and technology would be drastically changed, but pure science, mathematics, philosophy and particularly logic would be unchanged.*
>
> *Phaedrus found this last to be extremely interesting. The purely intellectual pursuits were the last to be affected by the subtraction of quality. If quality were dropped only rationality would remain unchanged."* Pirsig (1974)

What Phaedrus is saying is that our personal construct of *Quality* is always present, we take it and its effects on our society for granted but it is not always embedded in our conscious thinking. Quality is an essential part of all goods and services, but never really considered unless it is missing, which is often a purely subjective judgement on our part. It is not however an essential part of intangible things, things that exist and are governed by a strict and comprehensive set of laws that define for example what is a quadratic equation. There is no such thing as a good or bad quadratic equation, it is a quadratic equation or it is not a quadratic equation. Thus quality is not an affecting factor in this situation.

2.3 Quality, Since the Rediscovery

Many books and papers have been written over the last few years on and about the concept known as 'Quality'. These books all extol the virtues of achieving a quality product or service, and consider quality much the same way. Crosby, described as the 'elder statesman of the Quality Revolution', proposed the definition that has been adopted in this research. It was first proposed in the introduction, and it is as follows:

> *"Quality has to be defined as conformance to requirements, not as goodness."*
>
> Crosby (1984)

This definition fully supports the core concepts of TQM and will be seen again throughout the thesis. Other definitions that have been used in literature tend to be very similar, the British Standards Institute says:

> *"Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy a given need."* Sanson (1981)

The Japanese have similar definitions of quality:

> *"the meaning of quality in QC [quality control] is that which satisfies the customer and not only what satisfies National Standards."*
>
> Sasaki & Hutchins (1984)

The Japanese then go to take this definition to the ultimate level in their manufacturing industries:

> *"Commitment to a zero defect product is absolute - not only at top management levels but throughout the company - particularly at the sharp end where the products are actually made."* Wickens (1987)

In fact quality now in many Japanese industries concentrates on this zero defect concept, where defects are not considered to be just technical faults, but are in fact anything that does not conform to the requirements as agreed with the client. The manufacturing process employs a method that makes it impossible for products and or

components to be assembled incorrectly and thus a zero defect end product is achieved. The method used is called *'poka-yoke"*, an English translation would be *"mistake-proofing"*, Shingo (1986). The concept of *poka-yoke"* is described further along in the chapter. This process of course assumes that the parameters for a zero-defect end product have been defined.

2.4 Implementing Quality

Crosby promotes the philosophy of a 'zero defects' culture. He suggests that organisations that produce *'off specification'* products on a regular basis and then rely on after sales service or field engineers to take corrective action are organisations with a serious quality problem. Organisations that do not set clear performance standards for the employees and suppliers encourage them to create their own standards and once this culture is in place it is very difficult to introduce and more importantly implement new across the board standards. He maintains that the cost of non-conformance to agreed standards can be as much as 20% of the total turnover of the company.

Crosby's basic premise is that quality must be a part of the culture of an organisation; it starts from the top down. Unless senior management are committed to the achievement of a quality product and can be seen to be committed then the rest of the organisation will not take it seriously. In the list of ingredients for "The Crosby Vaccination Serum", which is then administered to the ailing company, he puts the following as the first on the list when striving for quality:

> *"The chief executive officer is dedicated to having the customer receive what was promised, believes that the company will prosper only when all employees feel the same way, and is determined that neither customer nor employees will be hassled."* Crosby (1984)

In Crosby's opinion, when this ingredient along with a number of other ingredients are mixed together and administered to a company, it will create the right environment within that company for a 'zero defect' culture to emerge. Crosby is careful to stress that there is no one simple *'silver bullet'* that can deliver quality in any situation, it is a collection of both the right culture and the ability to deliver a product that meets the criteria that enables a process or product to be described as one that produces a quality end product or process.

2.4.1 Crosby and the Cost of Not Achieving Quality

Rather than considering the cost of quality, Crosby looks at the problem from the reverse point of view. He considers the cost of not achieving quality, the manufacturing process should be 'costed' to be done once, his catch phrase here is *"DIRFT",* [do it right first time]. It should cost the same to do things correctly as to do things badly, but if things are done badly then there is a re-working or repair cost that must be added on to the cost of the article. Thus in his mind quality has no direct cost implication, it costs more to do the job badly than to *"DIRFT".*

Quality control systems that wait to test manufactured articles at the last point on the production line are in Crosby's eyes a waste of money, by the end of the line the faults are already built in to the manufactured article. He suggests in chapter 4 of *Quality Without Tears,* "A Quality Carol" Crosby (1984) that once a problem is discovered it is better to stop a production line and sort out and eliminate the problem, rather than keep the line rolling producing products with known faults and spend money *'re-working'* the faults, risking faulty products being undetected and reaching the market.

He acknowledges that it requires both a motivated management and work force to achieve the *"Zero-defect"* goal. The scale of success in cutting costs by improvements in quality achieved by the companies is listed anonymously in chapter 16 "Some

Success Stories". Crosby cites a computer manufacturer who increased production by 48% with field service operatives decreasing and cost savings of $241 million after twenty-two months of quality improvements. He also cites a semi conductor manufacturer who eliminated $35.5 million in manufacturing costs over a two-year period and several others who had made substantial savings by implementing a quality culture in their organisations.

2.5 Is Quality a New Concept?

The reader may be forgiven for assuming from this that before 1950 there was no such thing as quality in manufacturing. What must be considered is that prior to world war two, in this country in particular, the consumer society that we know now did not exist in a recognisable form. British industry was still very labour intensive although mass production techniques had been introduced during the war to boost the war effort. In this post war period there was a glut of labour, apart from the women that had been employed through out the war when the men were away, these same men were now de-mobilised and wanted work.

These men who were now de-mobilised married and had children and the population boomed. This generation had seen more of the world, had seen and been affected more by advances in technology than any previous generation, they became the first consumer generation. Before the war very few people had appliances such as washing machines, by the middle of the 1960s most families had one. Refrigerators were another example of a product that went from a very small distribution amongst the population to a commonplace appliance in all kitchens. The list seems endless, televisions, vacuum cleaners, telephones, motorcars, record players, industry was in boom and could barely keep up with demand.

Most of these goods had been available for many years before the war, but many things had a high proportion of hand built components produced by skilled craftsmen. This resulted in the price being out of most people's reach; only the well off could hope to own such goods. The standard of goods was as one would expect from hand built items, quite high, but then with these goods being fairly novel those who could afford them did not have any idea what to expect as they were not commonplace.

2.5.1 The Emergence of the Consumer Society

During the period from the end of the Second World War through to the 1970s, it may be that the consumers were just so happy to own these items, often for the first time. They may have had no idea what to expect in terms of longevity and finish, but that did not really matter as they had little or no real choice in these goods. The industries producing these goods could barely keep pace with orders and thus were not forced to concern themselves with 'quality' in order to keep their market. They did not therefore have to concern themselves with whether the products that they made met the requirements of their customers. It may be that this complacency based on a seemingly unending demand for goods lulled UK industries into a false sense of economic security.

Over the last thirty years, most consumers have had experience of these goods and now have clear ideas in their own minds what it is that they expect from an item in terms of finish and longevity. For those that have not had the experience there are consumer groups that publish tests particularly on consumer goods such as washers, televisions, refrigerators etc. This provides the set of criteria that consumers can adopt and then measure the performance of the goods that they are considering purchasing.

Consumers are now very aware of the quality of goods and now also services, we have publications such as 'Which', produced by the Consumer's Association, there are

television programs such as the BBC's 'Watchdog', 'Weekend Watchdog', and a host of holiday programmes that compare value for money. Consumers can hardly ignore quality issues in the majority of purchases that they make. Even in the purchase of the second most expensive items in most people's lives, the automobile, there is now an almost bewildering amount of information and criteria upon which to make your judgement when purchasing.

2.5.2 The Distinction between Quality Definitions

What emerges is the fact when we in western society talk of '*quality*'; we are talking about the Crosby definition of quality and not the Oxford English Reference Dictionary (OERD) definition of quality. The concept of conformance to requirements and not one of the seven ways that the OERD defines quality must be taken as the only possible definition if we want to measure quality and ensure that it is integral in all products and services. The OERD definitions *'the degree of excellence of a thing'*; *'general excellence'*; *'a distinctive attribute or faculty; a characteristic trait'*; *'the relative nature or kind of character of a thing'*; *'the distinctive timbre of a voice'*; *'high social standing'*; *'the property of a proposition's being affirmative or negative'*, are in the main subjective in nature and cannot be used definitively without further criteria. The only criteria that can be used to complete these definitions will be the *requirements of the customers,* thus, the Crosby definition meets all quality criteria and is complementary to the dictionary definitions. It is also in line with the 2400 year-old *Tao Te Ching* teachings; we are not trying to define the metaphysical Absolute Quality, but the qualitative aspect of quality. The aspect of quality that is always changing, the fact that once you achieve a certain level of conformance, the public will then come to expect that level as the norm and look even more critically at the product or service and have higher expectations. This is why Lao Tzu says *"Unceasing, continuous It cannot be defined"* because of the ever changing requirements of the consumer. Once achieved the definition requires updating to meet the new customer requirements.

2.6 Quality and the Automobile Industry - Nissan

The construction industry is often compared against the automobile industry in terms of quality of end product. The examples of best practice in the automobile industry seem to be indicative of what can be achieved if there is sufficient public pressure on an industry to improve the quality of their end product and their efforts are also well documented in many books and papers.

Wickens, Personnel Director of Nissan Motors UK, in his book "The Road to Nissan" makes the point that Japanese assembly workers take pride in the products that they make:

> *"Assembly workers genuinely take a pride in building the perfect product, and they insist that the components they receive are of the same high standard. They totally fail to understand the attitude prevalent in the West that quality is someone else 's business -particularly the practice of employing vast numbers of Inspectors whose task it is to check the work of the assembler."* Wickens (1987)

In this quotation the writer is using the term *perfect product,* the only way this can be achieved is by producing a set of criteria for the product and then informing the production workers of these criteria and measuring their performance in adherence to these criteria. Full adherence to the given criteria must be achieved to ensure the *'perfect product'* as specified in the quotation.

He suggests that the process of employing specific inspection teams leads to the work force thinking that it does not matter if they do get things wrong the fault will be discovered by the Quality Inspectors, in short, a dislocation of cause, inspection and responsibility for faults:

"In British industry, while we pay lip service to the view that 'we must build in quality not inspect it in', it is a regular practice to employ numerous In-process Inspectors, one after each foreman's group, to check the work of that group. This leads to the attitude 'If I don't get it right it will be picked up - and that creates a job for an inspector and repairman'. In Japan the assembly worker has total responsibility for the quality of the work he produces. Until the final checking of the vehicle at the end of each main department, individual tasks are not inspected by anyone other than the assembler." Wickens (1987)

Typically within British industry, the quality goal often becomes subservient to the 'numbers game'. The production target must be met to placate the accountants, and if quality has to suffer then so be it, we can sort that out with after sales service. The researcher has had experience of this in the private housebuilding sector, where end of year targets take precedence over all others.

2.6.1 The Team Work Culture

Nissan Motors UK. were committed not only to 'team working', but also individual development of the members of the team, and thus in order to achieve and maintain an impetus to be constantly looking for ways to improve standards, Nissan introduced a form of quality circle in the assembly areas. Unlike most textbook quality circles the control and direction of these groups was in the hands of the operatives. They chose the name *kaizen*, which can be translated as to mean 'continuous improvement' for these groups. The main aim (with full union backing) was to involve all operatives in the groups in continuously monitoring levels of conformance to specification and making suggestions about how this can be achieved easier or more consistently by changes in either working practises or component modification. Nissan considered this activity as an important part of the manufacturing process, and equally as important as the formal QC system:

> *'We therefore regard QC activity as just one aspect of a programme aimed at achieving employee commitment to continuous improvement in all areas."*
>
> Wickens (1987)

Nissan were committed to quality, they realised that they needed to develop a *'culture of quality'* in their workforce, without this no QC system would not give them the level of conformance to the requirements in finished cars that they required. This commitment to quality and thus conformance to requirements, can be seen in the first sentence of the company's philosophy statement that is issued to each employee they say:

> *"We aim to build profitably the highest quality car sold in Europe."*
>
> Wickens (1987)

They saw, and more importantly the work force saw that the profitability of the company plus a quality end product equated to long-term job security. This long-term job security enabled efficient and effective training and personal development to take place in the work place. This has enabled the Nissan plant in Sunderland to win the company prize for the best productivity and quality of all the Nissan plants worldwide.

2.6.2 The Power of the Consumer

The consumer is now also beginning to realise the potential of their power over automobile manufacturers and their end product. The American company J D Powers has been collecting data on automobiles in the US for many years and publishing league tables that are indicative of public opinion on the models that are available on sale in the US. These tables seem to have a major influence on the automobile manufacturers in the US, with each of the manufacturers trying to avoid any of their models being at the bottom of the top 'one hundred' models league table.

The JD Powers Organisation began to do the same thing in conjunction with the BBC's Top Gear programme some years ago. The Top Gear programme asked viewers who owned cars three years old to ring a number to register their interest with J D Powers. The callers are asked which model they own, and the database was then complied. The survey was careful to ensure that all of the one hundred models on the database were covered. If any one model was lacking appropriate representation, the Top Gear presenters asked on air for owners of these models to register. This process would ensure that all models were represented with a statistically significant public opinion rating on given identical sets of criteria for each model. The British J D Powers Survey has been running for over four years and the results show that from a customer's point of view, cars are getting better and more reliable. The results demonstrate that there is still a gap between what the customer wants and what the customer actually gets, particularly with some of the home and European built models. There is some movement in terms of the automobile industry as a whole producing more automobiles that meet the requirements than previously, which could be said to be directly as a result of initiatives such as quality circles. However, in order to maintain and improve on this level of conformance to customer requirements the importance of customer feedback mechanisms becomes greater.

2.7 The Japanese Quality Culture

The Japanese were just as concerned about the profitability of an industry as companies in the west. They did however look at the problem slightly differently from most western companies. Karatsu, Managing Director of Matsushita Communication Industrial Co., Ltd., said the following about the Japanese approach to quality control:

"in the process of rebuilding Japanese industries destroyed during the war, a large part of the effort was concerned on improving the quality of their products. As a result, some of them achieved top-level quality in the world, and they learned that quality products will always sell because good quality serves the

consumer best. By experience, they learned another important thing: the fact that, as quality control forms an integral part of the manufacturing process to improve product quality by reducing the production of defective goods, the cost of production invariably decreases. The better the quality, the lower the cost."

Saski & Hutchins (1984)

The very fact that Japanese industry has been so successful has led to western companies adopting similar quality processes albeit much later than the Japanese. This highlights the two facets that must go hand in hand for a successful company, quality products and profitability. In the past there has been companies that have manufactured what has been considered to be 'quality products' such as several large UK textile companies, but have gone into liquidation due to high manufacturing costs making them unable to make a profit and thus sustain the company. There have been other companies that have been profitable in manufacturing the product, but have gone into liquidation either due to high warranty claims, costs or that no one has wanted to buy their products due to their poor quality.

2.7.1 The Distinction between East and West in Terms of Quality Control

In the chapter "The Historical Development of Quality Control in the West" in *The Japanese Approach to Product Quality*, Hutchins comments as follows:

"the concept of Company Wide Quality Control was originated in the West, there is virtually no evidence of its successful application there. The concept of Company Wide Quality Control is based on the fact that quality is everybody's business and that ideally, we should create an organisation where everyone is working towards making their company the best in its particular field."

Saski & Hutchins (1984)

This seems to be the area in which British Industry has had the main problem; traditionally there has always been 'them and us' confrontations, management and workers being totally separated at all times. We had poor/inadequately trained management who thought that they were 'a cut above' the manual workers, failing to realise that the company was only as good as the weakest link in the chain. There are signs that this is now being rectified in organisations such as Rover and Toyota in the automobile industry, but as yet there is little to suggest that this is a universal movement.

The Japanese quality culture does not just rely on the motivation and single mindedness of the operatives. Wherever possible safeguards are built into the manufacturing process. Shingo (1986) describes some of the aspects of this system; he relates the story of Yamada Electric in Nagoya, Japan a component manufacturer of the Matsushita Electric Company in Kyushu.

This company made simple push button switches for its parent company Matsushita, occasionally a worker forgot to insert the tiny springs in the switches and the parent company when it discovers the faulty component insists that Yamada Electric send an inspector to their plant to re-inspect each and every switch. This is both a costly and embarrassing occurrence for Yamada. Shingo is then asked to inspect the assembly line, and while he is inspecting the line he noticed that an assembly worker mistakenly assembles a device without inserting one of the tiny springs. In order to remedy this he devised a protocol that made it virtually impossible for the batch of switches that each operative produces to leave the plant in a defective state. Two springs were removed from the parts box at the start of a batch and placed in a dish, there being only the correct number of parts in the box for a batch of switches. If at the end of that batch there are any springs left in the dish, then there must be a device that is faulty. The operative must then check all the devices before commencing a new batch and locate and repair the faulty ones.

2.7.2 Poka-yoke a Mistake Proof System

Shingo further developed this concept of preventing defects in components, he called it "poka-yoke ", and in English it means "mistake-proofing". He originally called it "baba-yoke" which means "fool-proofing", but found that when introduced into one company, one employee burst into tears at the inference that they were fools. The head of the department involved, finally managed to convince the worker that it was not the case that they were a fool, but that the device was meant to prevent mistakes that anyone could make. When told of this occurrence Shingo says,

> *"it was clear to me that 'foolproofing" was a poorly chosen term. But what name would be suitable? After some thought, I gave the name poka -yoke (mistake-proofing) to the devices because they serve to prevent (or "proof" in Japanese, yoke) the sort of inadvertent mistakes (poka in Japanese) that anyone can make."* Shingo (1986)

Poka-yoke has been developed in a number of manufacturing situations in Japan, it often involves jigs and components that are designed so that there is only one way of assembling the components and one order in which they will fit together. Using this system it is impossible for components to be put together incorrectly by mistake. A system like this, if it could be devised, would be invaluable in the new house building industry where defects arising from incorrect assembly of components in the experience of the author of this thesis, tend to be common place.

Latzko and Saunders produced a three-way transcript of a series of lectures given by Deming just prior to his death in 1993. Deming has been described as a "master of managing for quality", and has been credited with creating the environment for Japan's post war manufacturing success. At one point in the book during day three, the authors report on the discussions between some delegates as follows:

> *"We had also heard of so-called 'Total quality Management (TQM)'. This implies that quality is a method. I now know that quality is actually an outcome and that the term 'TQM' is misleading."* Latzko & Saunders (1995)

This quote the author of this thesis feels sums up the whole quality field; quality is not about neat and tidy paperwork; it is a culture that starts at the top and works its way down. Only when the whole organisation is committed to the achievement of quality will the goal of '*zero-defects'*, true definable quality be attained.

2.7.3 Acceptable Quality Levels

This culture is well demonstrated when considering the following passages. The American computing company IBM some years ago in an attempt to improve quality in components from suppliers had adopted the concept of 'Acceptable Quality Levels' (AQLs). These AQLs clearly state the minimum number of components that must meet the full specification within the total order, for that order to be accepted. A very good example of this is the following case:

> *"An IBM firm in Windsor, Ontario, ordered a shipment of components from a Japanese firm, specifying the AQL as three defective components for every 10,000 parts. In a covering letter from the Japanese supplier to the IBM firm (which was reprinted in the Toronto Sun) that accompanied the order the Japanese company explained how difficult it was to produce the defective parts and said We Japanese have a hard time understanding North American business practices. But the 3 defective parts per 10,000 have been included and are wrapped separately. Hope this pleases."* Bank (1992)

Thus it can be seen that AQLs are probably not the way forward, and have in the most part been superseded by other quality tools such as Quality Assurance (QA) and Total Quality Management (TQM). The second thing that is demonstrated by this section is

that quality is not just a concept; it is a culture that must be present throughout an organisation from top to bottom.

2.8 Summary

This chapter has set out the definitions for the consideration of quality for the rest of the thesis. It has looked at the historical background of and the rise in importance of quality in modern society. It has also considered methods to help in the achievement quality, both positive and negative and the cost of non-achievement of a quality end product.

The literature reviewed in this chapter shows that quality is an integral part of life and that consumers are becoming more discerning, comparing goods and services to make decisions on which they think are best. It shows that relevant research and work has been done to enable high levels of quality to be achieved consistently. Most importantly it shows that quality is a state of mind, any company that is committed to producing a consistently high quality end product must have a quality culture at the heart of their organisation. The achievement of quality must be a core value and it must be a boardroom level commitment and be consistently applied/enforced downwards throughout the company, with no deviation accepted. In short the literature tells us that definable quality is achievable on a consistent basis in any industry providing the will is there to do so.

The next chapter of the thesis will consider the literature written concerning quality management systems, it will introduce both the concepts of Quality Assurance (QA) and Total Quality Management (TQM) and explain what effect these systems have had on the achievement of quality.

[redacted] QUALITY SYSTEMS IN INDUSTRY

3.1 Introduction

The aim of this chapter is to consider the literature on the quality management systems, specifically Quality Assurance (QA) and Total Quality Management (TQM). It will with the help of the literature describe how QA whilst having its good points cannot be a complete system and thus guarantee a quality end product. It will then show again with the help of the literature how TQM can guarantee a quality end product. It emphasises the importance of establishing a quality culture within a company and that this culture must be board room down culture. The chapter ends with the first conceptual model of how TQM works in terms of delivering what the customer wants by continuous monitoring and customer feedback.

3.2 Quality Assurance

The concept of Quality Assurance (QA) emerged in the 1970's as companies became aware that their products were having to compete in a competitive global market along side the Japanese and other far eastern competitors. These companies were new in the field and had built up their industries over the last two decades, often with help from the very companies with whom they were now in competition. These new competitors had new state of the art equipment, bought from the west, a flexible, willing and cheap workforce and a management that had recognised the importance of quality as a marketing tool.

Anyone that purchased a Japanese car in the 1970's will have seen a little red sticker on the window of the car stating that the car had been inspected and had met the company's quality standards. This signified something that had not been accepted practise in British industry, the fact that each and every product was inspected. In

Britain the trend was for batch testing, one in so many would be tested per shift and therefore many defective products did reach consumers. When faults were identified, the whole batch of products may have to be sent to a 're-work' area for inspection and rectification which could be a costly process or sent out as in the case of cars to the dealers and have the work done there. Not a very satisfactory process for the customer who thinks that he is buying a new product, not one that has already been repaired.

It would appear that where the British companies were missing out, was on the fact that the Japanese could place theses stickers on each and every car because they did not rely on inspection at the end of the production line to establish quality. The quality of any product is 'designed and manufactured in' from the very beginning of the design and production process. The inspection process was an integral part of production, and unlike in the UK, when faults were detected on the production line the line was halted and the root cause of the defect investigated and rectified so that the fault did not re-occur. In short, the whole of the production line was one big quality inspection and the spin off from that was that all of the production met the company quality standards.

The Japanese had fully taken on board Deming and Juran's message and made quality a culture that was integral with in the company, it started at the very top and percolated down through all levels of staff working for that company. It became everyone's job to check the product throughout its whole production process; they remembered Deming's words;

> *" The customer is the most important part of the production line."* Walton (1989)

3.2.1 End of Production Line Inspections

Unlike the Japanese scenario, in Britain it was the quality inspector's job to check the quality of the product and nothing to do with the production line workers or to some extent the managers. The quality inspectors would be stationed at the end of the production line and if did their job too well rejecting too much of the shift's production, then they were unpopular with both workers for loss of production bonus and management for loss of production and the cost of the remedial works. This is summed up well in the following passage:

> *"An environment in which the emphasis is on making god the non-conformance rather than preventing it arising is not ideal for engendering team spirit, co-operation and a good working climate. The focus tends to be on switching the blame to others, people making themselves 'fireproof', not being prepared to accept responsibility and ownership, and taking disciplinary action against people who make mistakes."* Dale, Lascelles & Boarden (1994)

The author of this thesis has some personal experience of this situation, when working for a construction company doing major building works on the premises of a local newspaper in the 1970's. The paper was constantly being criticised for its bad spelling, so management had a meeting with the proofreaders and put them on a bonus scheme. The idea was that the more mistakes they spotted the more they were paid. It seemed like a good idea, but then the 'linotype' operators that actually produced the negative type face went on strike because they had to work longer altering the type face after the proofreading was done. This in turn angered the management as they missed a couple of days print run of the paper and thus turnover and profit, they complained to the proof readers that they were being too keen. The proofreaders then went on strike as they thought that the management were trying to take away their bonus scheme and thus cut their earnings.

The management then after protracted negotiations gave in to the 'linotype' operators, giving them extra money for the 'extra' work of putting right their own mistakes. They

then told the proof readers not to be so keen on spotting all spelling mistakes whilst still gave them the same bonus as if they had spotted them all. The end result was that the number of spelling mistakes was soon back to the normal high level, industrial peace returned to the paper and but costs rose.

The management were more concerned with production and profit than producing a quality paper and they were lucky that they were the only daily evening newspaper in the area and so they did not loose any customers due to the poor English used in the paper. This is indicative of the type of problem that arises from trying to inspect in quality as an after thought rather than 'designing' it in from the beginning.

3.2.2 BS 5750 and the Limitations of Quality Assurance

Quality Assurance as defined in BS5750 was an early attempt to 'design' quality in from the beginning. (BS5750 is now part of the set of standards known as BS EN ISO 9000 these are European wide standards). The standard's aim was to influence the management of a company into thinking in quality terms not only for the product, but also for the process that produces the product. This aim of involving management and looking at production systems is considered to essential by the Quality Gurus, this can be seen from the following passage:

> *"Deming states that 94% of all quality problems are down to management. But in addition to setting up better processes and systems they should involve employees in participative decision-making. He is positively hostile to inspection."* Bank (1992)

It could be argued that it is the more enlightened companies have seen that QA has its limitations. It is perfectly feasible for a company to possess excellent management systems and thus be fully QA accredited and still produce a product that is less than acceptable to the end consumer. QA in itself does not necessarily consider the end

users requirements and as such cannot produce quality in a product or service. This apparent short coming of QA is well demonstrated in the research paper by Tam and Tong (1996) of the University of Hong Kong entitled "*A Quality Management System in Hong Kong: a lesson for the Building Industry Worldwide".* This paper looks at the effects of the Hong Kong Housing Authority mandate that all main contractors tendering for work from the authority take ISO 9000 certification before 31 March 1993. The authority controlled work to the value of US$ 6.72 in 1994, and saw this as a way of improving the quality of the building work it commissioned.

> *"The Housing Authority perceives that the implementation of the QA scheme should lead to quality improvement as do contractors who also believe that the scheme would lead to expansion of market share (BSI Quality Assurance, 1991). Site management staff, however, perceive that the scheme would bring them higher workload, un-rewarded efforts, window-dressing exercises, and maybe, quality improvement. In actual fact, the scheme has brought about all these plus communication and motivation breakdowns as revealed from the questionnaire survey. Most of these consequences are, unfortunately, contradictory to the ultimate and original objective: quality improvement.*
>
> *The questionnaire survey shows that the certification exercise was used mainly for complying with contractual requirements rather than arising from any real concern for quality issues among contractors."* Tam & Tong (1996)

Site management were de-motivated as a result of the perceived workload increase due to the introduction of this scheme, this in turn led to 'false attitudes' that combined with poor communications resulted in 'non-creative tension' situation.

> *Creative tension is the internal driving force towards the targets, (Senge et al 1994). Non-creative tension is opposite to creative tension, that is the stress driving people away from targets.* Tam & Tong (1996)

The end result of the scheme seems to be no real quality improvement, and the paper goes on to recommend that clients do not perceive QA as an end, but merely a tool that can help to achieve quality alongside other schemes such as their own Performance Assessment Scoring Scheme (PASS), and education rather than compulsion resulting in genuine commitment to quality improvement.

3.2.3 Quality Assurance in the UK Construction Industry

The picture in the UK with regard to QA in the construction industry is not too dissimilar, though perhaps more inconclusive. In a report for the DoE in 1995, the Quality Liaison Group stated:

> *"Whilst some parts of the construction industry have invested a great deal in improving quality, research reveals that defects arising today are virtually unchanged from those identified 20 years ago."* DoE (1995)

The author of this thesis suggests that the whole of the QA concept seems to be surrounded in uncertainty about its effectiveness, even the Latham (1994) was unconvinced with the available evidence that QA systems were effective in improving quality. In research done by a team at the University of Glamorgan into measuring the effectiveness of QA in construction, they make the comment that:

> *"none of the interviewed companies had developed any measures, nor knew of any available, to assess objectively the effectiveness of their QA systems."*
>
> Al-Nakeeb et al. (1998)

They go on to say that the wording of the standard itself may be responsible for some uncertainty in terms of what can be expected from accredited companies in quality terms.

> *"The word 'effectiveness' in the BS 5750 seems to mislead people into thinking that it implies the effectiveness of the system in meeting the specified*

requirements and the prescribed quality objectives, whereas in fact it refers to the effectiveness of the system in meeting and complying with the specified requirements of the BS standards." Al-Nakeeb et al. (1998)

The Glamorgan team's research identified the lack of measurement tools specifically designed to measure the effectiveness of QA systems, this lack of measurement tools is echoed by the vice president of the Juran Institute who said:

"Quality improvement without measurement is like hunting ducks at midnight without a moon – lots of squawking and shooting with only random results and with a high probability of damage". Early (1991)

The Glamorgan paper summarises the problem of assessing the effectiveness of a QA system by commenting that when; QA systems are properly integrated into the management systems of a company as intended by the BS, it is then impossible to assess any increase in quality of end product purely attributable to the QA system alone.

3.2.4 Quality Assurance – an Incomplete System

Thus QA, must be seen as an incomplete system, it is difficult to measure if and how much it is effective, even after 18 years after the introduction of BS 5750 the jury still seems to be 'out'. As with any improvement process, steps must be taken slowly and methodically, the role of QA systems must be seen as just one of the steps. It has awakened both client and industry to the continuing problems of achieving higher quality levels, and thus increasing client satisfaction.

If this is taken as the main achievement of BS 5750, it may have not achieved all it set out to, but it has been a qualified success. QA has shown where the 'gaps' are in the quality puzzle, it could be seen as the first few steps on a journey, that need to be

taken to get to the event horizon so that the next phase comes into view. It is, however, essential that industry does understand that the journey leads on from this point, from the batch sampling mentality to the concept of stopping the process when a problem arises so that it's source can be traced and eliminated and thus the problem does not happen again. It is only when industry realises that it costs too much to 're-invent the wheel' each time, that defects can be prevented and not just rectified that we will approach the next event horizon on the journey, Total Quality Management.

3.3 Total Quality Management – The Next Event Horizon

This sub title of Total Quality Management, the *next event horizon*, is quite an important concept. The pursuit of quality should be seen as a journey towards an ever-changing end result. Once we achieve a certain standard in an item or service (reach the current event horizon), we then come to expect this as the minimum acceptable level (and the next event horizon comes into view).

This constant changing requirement can be seen in the level of standard equipment that we now come to expect in new motorcars. The provision of such basic features such as heaters that in the 1950s were optional extras have been standard features since the mid 1960s and now air conditioning that was considered to be a luxury feature fitted only to very expensive cars to now a standard feature. Levels of comfort and equipment installed as standard are constantly being up-rated by automobile manufacturers not only in order to maintain or increase their market share over their competitors, but in answer to ever increasing demands from their potential customers. Thus the improvements are evidence that the industry is listening and reacting to feedback from their customers.

3.3.1 Customer Requirements

This is the concept of Total Quality Management (TQM), it is inextricably linked to customer requirements, thus, as customer requirements change or increase then so do the requirements for achieving a quality end product, it must be considered as a continuous improvement process. TQM is different from the established product based quality systems of many manufacturing industries including the construction industry. It may actually mean in some cases that the industry devised and held quality criteria that have been worked to for many years must now be either revised or abandoned. The current customers may not share the same quality criteria as the manufacturers, and thus in order to meet the customer's requirements the manufacturer may have to change the way their company works. This is summed up very well in the following quotation:

> *"By definition of the market place we expect in the 21st century, Western companies need to achieve world class capability. Put simply, this means the ability to meet customer requirements better than the opposition can. These requirements vary depending on the marketplace and the individual customer, but it is a fact that universally customers are demanding better quality of service, as well as quality of products. This means that companies have to achieve competitive edge through business 'drivers' which reflect customer concerns."* Spenley (1992)

Whilst TQM may be seen as a relatively new concept in the construction industry, it has been used by many other industries since the early 1990s. TQM is a complete concept, Spenley in his book World Class Performance Through Total Quality, A practical guide to implementation, is fairly forceful in his praise for this concept:

> *"TQM is the single most important management methodology available today to achieve and maintain a competitive edge against worldwide competition."* Spenley (1992)

3.3.2 The Quality Culture

He goes on to comment that what is needed to achieve quality is more than a set of objectives devised by the senior management, there must also be a way of ensuring that these objectives are achievable, by means of an acceptable and practical management methodology. It is what is known as a top down process:

> *"TQM provides the management methodology which must form part of the total company business strategy, has been thought through, fully understood and implemented from the top down via the TQM process."* Spenley (1992)

It requires the senior management to fully understand the concept and make the necessary changes within the structure of the company in order to create the type of culture within the company that will allow and encourage individuals to contribute to the achievement of the company quality objectives. The existing culture, which according to Drennan: *"Culture is 'how things are done around here'. It is typical of the organization, the habits, the prevailing attitudes, the grown-up pattern of accepted and expected behaviour"* Drennan (1992), within a company may well be one of the biggest problems that the company has in terms of achieving a quality end product. Rigid working practices, an inflexible basic management structure, with associated narrow job descriptions may have some bearing on the problem. Employees may be described as production line workers and as quality control inspectors; the production line workers may think that if there are specific quality control inspectors, then the task of ensuring quality is purely the province of these inspectors.

The type of cultural shift needed in order to achieve TQM within an existing company may therefore be quite fundamental, the old demarcation lines between production and quality control must be swept away. Quality must become a part of everyone's job description, *"If quality isn't ingrained in the organisation, it will never happen."* Crosby (1979) The goal must become one of zero defects *"ZD is the attitude of defect prevention. It means 'do the job right first time."* Crosby (1979) Instead of detecting

defects during the process and rectifying them, the cultural shift within the company begins with the senior management either themselves or employing consultants to analyse the processes that the company currently employs. There is little difference between service and manufacturing companies in this respect, in order to do a job 'right first time' it is essential that all the opportunities for things to go wrong in the current system are known and analysed. As Crosby puts it:

"The concept of prevention is based on understanding the process that needs the preventative action. Whether you are making printed circuit boards or preparing insurance policies, the concept is the same.....The secret of prevention is to look at the process and identify opportunities for error. These can be controlled. Each product or service contains many components, each of which has to be dealt with to eliminate the causes of problems." Crosby (1984)

This therefore, needs a process of education or re-education throughout the company, not just for the workers at the face of the process, but for the senior management also. If the production workers see that the management are not as committed as they say they are to this 'new idea', and can be cajoled or coerced into accepting things that are not completely to specification then the system will fail progressively. The non-conformance will start with small deviations from specification and then larger and larger deviations will follow.

"Management commitment is tested and tested until it can be assumed."

Crosby (1994)

3.3.3 Non-Conformance

This concept of not accepting off specification work and the concept that specifications should not contain un-necessarily proscriptive requirements where it is not necessary are very important. It again links back to the concept of achieving 100% customer satisfaction. The company concerned must be totally aware of the full client

requirements of the product that they are producing. If they are aware, then they can then analyse the production process, seeing just where it is that each of the requirements of the product are attended to and ensure that this process takes place correctly.

Crosby relates a tale dating back to 1962, when he was working for a company in the electronics industry. He had introduced a 'Zero Defects' system into the company and was ultimately responsible for signing off work or rejecting it. The tale highlights the problem identified in the last two paragraphs, and reinforces the commitment to not accept off specification end products:

> *"About six months after we started Zero Defects in 1962, a top manager came to me with a non-conforming assembly. It was in good shape electronically, but the case had a gouge in it.*
>
> *'I have seen engineering and they say that this mark does not affect form, fit, or function. Marketing says that the customer doesn't mind because they just bury the unit anyway. We can't rework it and it would cost $35,000 to make new cases. We will only do twenty-three of these units and they are already made.'*
>
> *'So what do you want from me' I asked.*
>
> *'Sign it off so we can use it. Your people won't touch it, what with all the ZD emphasis and all.'*
>
> *'You have no problem with me." I replied. "Just get a drawing change notice, tell us where you want the gouge, and we will make certain that all of them come out that way.'*
>
> *The message has to be clear from top to bottom. "We will take the requirements very seriously. If we don't need something, then let's officially change the requirements. But please don't ask me to agree to deviations. We need to spend our time learning how to make things right."* Crosby (1984)

We can see from this just how important the process of determining the exact requirements that the customer has in regard to the end product that a company is producing for their customer. There is very little point in the management of the manufacturing company deciding what the requirements of the product will be when they may not be the same as the customer. The company could produce 100% defect free products based on their requirements but when delivered to the customer find that they are unacceptable to the customer and thus rejected. This once again emphasises the concept that the requirements that must be considered and met are the customer's requirements. In the above example it may be unrealistic to expect a customer to accept a product that has a gouge in the case even if he is only going to bury them. The manufacturer may be able to negotiate acceptance of the gouged product but almost certainly the customer will require a reduced cost per unit. This means that even with customer agreement to accept these twenty-three items, they could not be described as having 'zero defects'. TQM is not about producing the theoretically perfect product, it is about meeting the needs of the customer, and it is only by meeting and talking to potential customers that these needs can be established.

3.3.4 The Essence of Total Quality Management

To summarise the essence of TQM, perhaps it is reasonable to use the words of the man who is credited with devising the term, Feigenbaum, Manager of Manufacturing Operations and Quality Control at the General Electric Company in New York City in the 1950s:

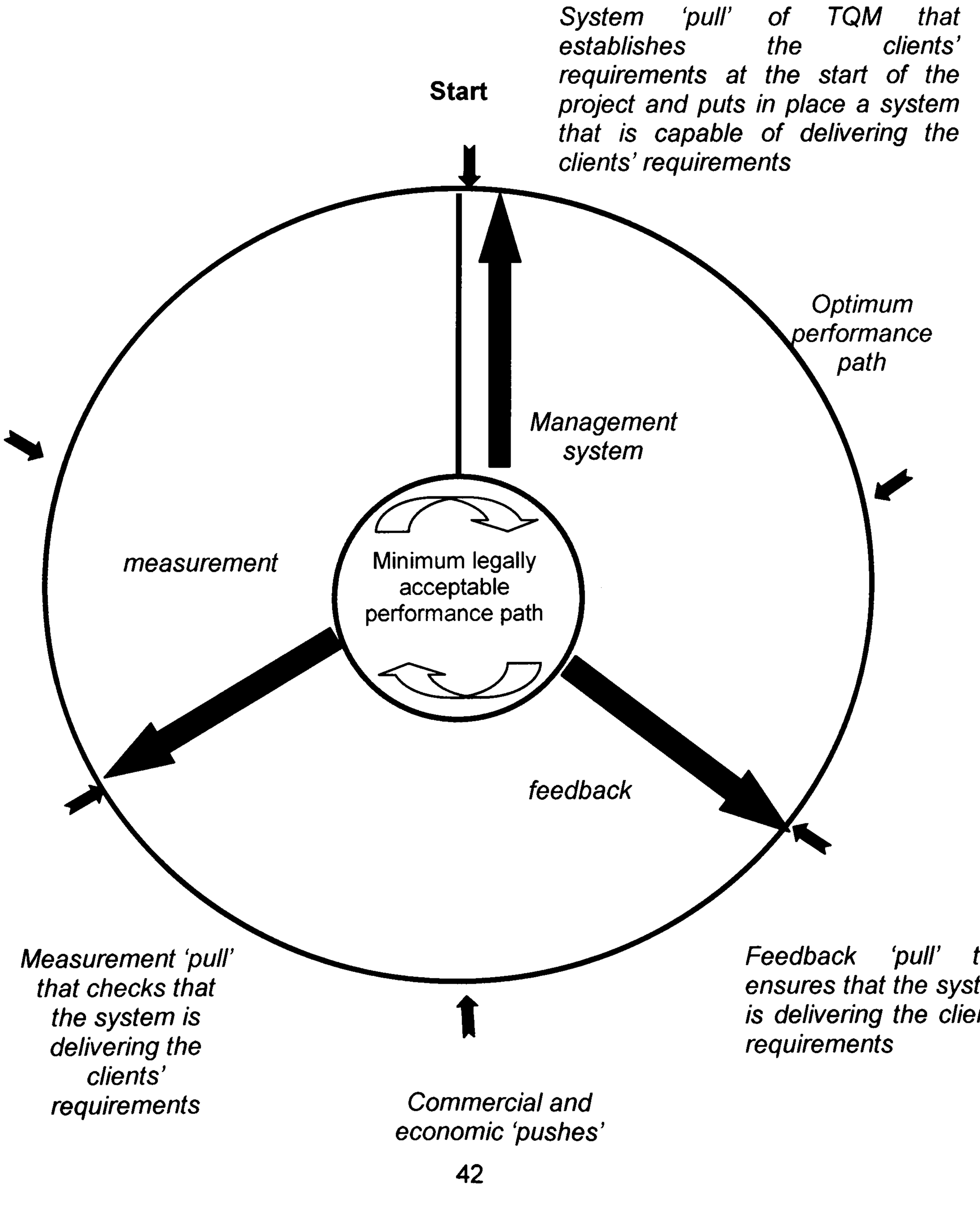
> *"An effective system for integrating the quality-development, quality-maintenance, and quality-improvement efforts of the various groups in an organisation so as to enable production and service at the most economic levels which allow for full customer satisfaction."* Feigenbaum (1961)

TQM gives us the basis to establish a model of optimum performance in a

client/industry relationship. The model demonstrates a system of *'pulls"* that represent the result of the client establishing what their exact requirements are at the start of negotiations with the manufacturer. The manufacturer is then able to put in place, if it is not already in place, a system that will manage the process to deliver the client's requirements. This system should include a feedback system that will continuously measure the performance of the system, ensuring that it is in fact achieving and delivering the client's requirements.

3.3.5 Conceptual Model A

Conceptual Model A: The way TQM provides what the Customer wants



Conceptual model A has been devised to visually represent the fundamental concepts of TQM. It has an inner circle that represents the minimum legally acceptable performance path that would satisfy any legislation concerning the product. The outer circle represents the optimum performance path that fully meets the requirements of the client. This optimum performance path may change with different client requirements. In the model the outer performance path is not necessarily a fixed path, it is flexible and in fact has tendency to contract and take up the minimum legally acceptable path. The rotation of the system represents the project path from inception to completion and shows that it is not a static system. When rotation takes place in a body with a flexible outer wall, gravity in the form of centrifugal force tends to pull the outer wall to its limit. The limit in this case is the optimum path that meets all of the client's requirements. In this model centrifugal force is replaced by a system of *'pulls'* that ensures that at all times the system matches client's requirements to actual production and thus the quality of the end product. The model starts with a system being devised that will manage the project and ensure that the work always meets all the client's needs. The system employs feedback throughout the project to ensure that the system is still delivering the clients needs and has a system whereby the measurement against the pre agreed criteria becomes a final check on the project, but if the feedback system has been functioning correctly during the project this measurement operation will be purely a confirmation that the system has delivered what it set out to do.

In this situation the project achieves optimum performance throughout the project due to the fact that the systems put in place are driven by the requirements of the clients and has constant checks to ensure that the system is achieving the designed outcome of an end product that has zero defects in relation to the client's requirements. The model counteracts the natural tendency for the outer path to take up the minimum route, caused by *'pushes'* such as commercial and economic pressures on the

construction industry, labour shortages etc., by balancing the *'pushes'* with a system of *'pulls'* consisting of the client's requirements, feedback loops and metrics. This then ensures that at all times the project performance path maintains the optimum required path and fully meets all client requirements. Thus conceptual model A must be considered to be the optimum model in terms of delivering the client's requirements and thus quality.

3.4 Summary

This chapter has outlined both QA and TQM, it has discussed the limitations of QA and shown how TQM not only picks up where QA is lacking, but that TQM is a totally different system. It demonstrates the need for a quality culture from the top levels of management that is transparent and enforced and adds to this the customer interaction and continuous feedback into the management system so that the end product meets the customer's needs and thus can be considered to be a quality end product. It has introduced Conceptual Model A that demonstrates the forces acting on a project and how they must be managed in order to meet the needs of the customer.

The next chapter looks at research concerning customer satisfaction what it is and how it is measured. It looks at work done in service industries where research has been done into what the public perception is of the industry even where there is no physical end product. It considers the two fold aspects of quality and the work done on the measurement of these two distinct areas.

[redacted] QUALITY AND CUSTOMER SATISFACTION

4.1 Introduction

This chapter will consider the concept of customer satisfaction. It considers literature written on the component parts of customer satisfaction, what it is and why it is so important to companies and importantly how it can be measured. Due to the nature of customer satisfaction being based on the way customer perceive the goods and services they buy, the chapter looks at the psychological aspects of customer perception; attitude; satisfaction; judgement; experience and expectation. In this way we can identify the aspects of these psychological phenomena that can be either controlled or modified in order to measure customer satisfaction accurately.

4.2 Hard and Soft Issues

Research done by Kristensen, Martensen and Gronholdt, (2000) in Denmark into customer satisfaction with the Danish postal service, Post Denmark, looked at the European Customer Satisfaction Index (ECSI). The main concepts of the ECSI consider four main areas, image, expectations, perceived quality (hardware) and perceived quality (software). The hardware is considered to be the actual quality of the postal service and the software is the quality of the customer interaction, later called *"human ware".*

The research looked at two markets, private and business, and in both the *software* aspect of the service was found to be an important factor in terms of customer satisfaction. The private sector considered the quality of postal service most important with the quality of customer interaction second, whilst the business sector considered the quality of customer interaction to be the most important factor in terms of *customer satisfaction* and *quality of postal service* second. The main aspect as far as this

research is concerned from the Danish study was the concept of customer satisfaction being a composite of 'hardware' and 'software', the product and the service aspect of the product. In relation to the ECSI model for Post Denmark they say:

> *"[..] the proposed split between 'hard ware' and 'human ware' was a very good idea since the impact from these two areas is quite different in different situations."* Kristensen et al. (2000)

The study emphasises just how important the split between 'hard issues' and 'soft issues' can be when trying to measure customer satisfaction. One of the problems encountered when trying to measure these soft issues is, what is it that we are actually trying to measure? And what are the criteria that need to be considered?

4.3 What Is Customer Satisfaction?

This section will put forward some suggestions that have been made by others in the field in an attempt to answer to the first question posed in the previous paragraph, the second question, the criteria that need to be considered will be discussed at length in the next section.

It is now accepted Gruska (2000) that customer expectations are rising, and that this phenomenon applies to all industries, from manufacturing to the service providers.

> *"At the end of World War II, we had a seller's market. Customers were happy just to be able to buy products and obtain services. 'Quality' was generally not a decision criterion for purchases. One result of the quality activities of the past two decades is that customers come to expect continual improvement of product and service quality as well as provider responsiveness. Furthermore, there is a crossover of these expectations, to education, healthcare, the public sector etc. These demands will continue."* Gruska (2000)

The realisation has taken place both here in the UK and in the US, that expectations are rising, Disney (1999) for example comments on the fact that previous *'take it or leave it attitudes'* are misplaced in the modern competitive domestic markets. He further comments on the need to first of all establish what it is that the customers want, and only then can you go on and meet these expectations. The whole concept of customer satisfaction is fraught with difficulty; it is subjective and relies on people's perceptions of what is going on and how they are being treated. Singh and Deshmukh (1999) say much the same about the Indian domestic market, linking it to the fact that in years to come only the industries that have met the continuing demands of customer will survive.

People's perceptions of facts and situations are notoriously un-reliable; Disney (1999) quotes some market research done by the supermarket Tesco into customer's perceptions of waiting times at checkouts. The research found that most customers when questioned directly after they had been served, about the length of time they had waited, perceived that they had waited longer than they actually had. When something is not quite right, we have a tendency to make it seem worse than it actually is in order to emphasise the problem and try to get it corrected.

The respected team of researchers into customer satisfaction and customer loyalty, Zeithaml, Parasuraman and Berry have cited some pertinent findings in a paper written in 1990 conducted in the US into customer satisfaction/loyalty. In any group of customers, only 4% of those that are dissatisfied actually complain, the other 96% of those who are dissatisfied merely tell on average another 10 people about the experience. Zeithaml et al. (1990)

In an attempt to measure of the *"quality of goods and services as experienced by those that consume them"*, Anderson & Fornell (2000), discuss the problem in a paper that considers the American Consumer Satisfaction Index. Anderson & Fornell also say

that in the vast amount of research done by teams such as Anderson & Sullivan (1993); Bearden & Teel (1983) and others it has been shown that customer satisfaction is a major factor in customer loyalty that produces repeat and recommended business.

> *"Satisfied customers can therefore be considered an asset to the firm and should be acknowledged as such on the balance sheet."*
>
> Anderson & Fornell (2000)

Ermer in a paper that looks at customer needs in higher education says:

> *"To better serve customers, it is necessary to have an in-depth understanding of their real and perceived needs. Surveys can play an important role in the process of gathering reliable customer data, but the approach is more passive than active - that is surveys are limited by the questions that they ask."*
>
> Ermer (1995)

This serves to demonstrate the universality of the concept of understanding and applying/responding to perceived customer requirements, no matter what the end product or service or combination of both. It is possible by careful selection of questions asked, for an organisation to control the results of a survey and thus gain apparent credibility for a stance on customer's perceived needs that may be flawed.

From the available literature it would appear that we do have some reasonably universal concepts about what constitutes 'Customer Satisfaction'. These concepts are not really new; most have been around since the early 1990s, and are now ten years old. Other industries seem to have picked up the concept and to be producing good improvements in overall customer satisfaction with their products such as British Airways and IBM, Bank (1992).

4.4 How should Customer Satisfaction be Measured?

Customer satisfaction is intrinsically linked with quality and so we will look at the measurement of quality first. It is generally accepted that it is easier to measure the product aspect than the service component of quality, (Crosby 1979; Garvin 1983; Parasuraman et al. 1985). The measurement of quality has been a subject of much debate over the years. Early (2001), president of the Juran Institute acknowledged that whilst the measurement of physical processes is relatively easy, the difficulty with measuring the subjective area of service is a lack of established practices in the measurement of services.

It also shows the importance of the '*soft issues'* Kristensen et al. (2000), without a robust method of measuring these issues then the whole concept of measuring quality and quality improvements, becomes unreal. These 'soft issues' are the basis on which customers make their decisions as to whether the overall quality of a product is good bad or indifferent. These are individual's perceptions of what has happened and how they were treated during the transaction between the customer and the supplier of goods or services. This is what we will refer to as 'service quality' for this discussion, and it has been defined as:

> *"the extent of discrepancy between customer's expectations and their perceptions."* Parasuraman et al. (1985)

4.5 Soft Issues in Quality

These 'soft issues' include terms such as perception, attitude, satisfaction, judgement, experience and expectation; these are all terms that are definable in psychological terms. They are all 'human factors', and as most humans are different it is quite possible for each of these factors to be seen differently by each person.

Deming in his writings always remained loyal to his 14 points to be adopted by any organisation if they wanted to follow his teachings, (he may have changed the words

dependant on feedback received.) In trying to extend this concept beyond manufacturing he came up with the concept of a System of Profound Knowledge (SPK). Item four of four in SPK is the understanding of psychology, and in this means the psychology of the customer, Gruska (2000).

As Parasuraman et al. (1988) points out, researchers such as Garvin (1983); Dodds & Monroe (1984); Holbrook & Corfman (1985); Jacoby & Olsen (1985); Zeithaml (1987) have each made distinctions between what has been called *"objective and perceived quality"*. It is within these soft issues that yet another problem appears in terms of quality research, Parasuraman et al. (1988) note that according to Holbrook & Corfman (1985):

> *"Consumers do not use the term quality in the same way as researchers and marketers, who define it conceptually."* Parasuraman et al. (1988)

It would, therefore, seem that we should consider the common and psychological definitions of these 'soft issues'; they may hold the key to being able to measure customer satisfaction.

4.5.1 Perception and Quality Issues

The Oxford Dictionary defines perception in six ways, the one that would seem to be best linked to quality of products and services is: *".an interpretation or impression based on one's understanding of something."* Oxford English Reference Dictionary (1996) This would imply that some basic knowledge or information about the product or service is both available and comprehensible. According to some psychologists:

> *"perception cannot occur in the absence of sensation, but the sense-data constitute only the 'raw material' from which our conscious awareness of objects is constructed. So, to the extent that we perceive the world as it really is, we do this indirectly, through analysing, interpreting and trying to make*

sense of sensations." Gross (1987)

This passage again indicates the need to provide some form of tangible, but takes the process a little further by qualifying the fact that the tangibles are not absolutes in their own right, but are themselves subject to personal interpretation.

The following two psychological definitions of perception help to illustrate this point well:

> *"perception is not determined simply by stimulus patterns; rather it is a dynamic searching for the best interpretation of the available data perception involves going beyond the immediate given evidence of the senses."* Gregory (1966)

> *"the process of assembling sensations into a useable mental representation of the world."* Coon (1983)

There is no reference to what one could describe as '*reality*', but to *personal* interpretations of *available data* and *useable mental representations.* Gross also paraphrases Ornstein (1975) saying:

> *"..we do not perceive objective reality but, rather, our construction of reality; our sense organs gather information which the brain modifies and sorts and this 'heavily filtered input' is compared with memories, expectancies and so on until, finally, our consciousness is constructed as a 'best guess' about reality.*
>
> Gross (1987)

The impressions are made by current stimuli however accurate or inaccurate they may be interpreted and our state of mind at the time we make these judgements. If this is then applied to the quality aspect of goods or services, we find similar ideas, for instance Parasuraman et al. from work done by Zeithaml in 1987 conclude:

> *"Perceived quality is the consumer's judgement about an entity's overall*

excellence or superiority." Parasuraman et al. (1988)

Perception is therefore about making judgements based on external factors that have and do affect the way we *'see'* things. In perceptions about quality, the external factors that affect judgement may be the key to measuring perceived quality. If these factors could be identified, their effects could then be measured. Once they have been identified, they could be modified, which may then modify a person's perception of quality.

4.5.2 Attitude and Quality Issues

The Oxford Dictionary defines attitude in six ways, and the one that would seem to be best linked to quality of products and services is: *"a settled opinion or way of thinking."* Oxford English Reference Dictionary (1996) There appears to be no single definition that all psychologists would agree upon, they do however debate the interchange ability of the terms attitude, belief and values, and according to Gross:

> *"While most adults have will have many thousands of beliefs, they have only hundreds of attitudes and a few dozen values."* Gross (1987)

What then affects these concepts? Gross goes on to say that:

> *"Finally it is important to make the point that attitudes, beliefs and values are hypothetical constructs and cannot be directly measured or observed but must be inferred from behaviour, including responses to tests and questionnaires. Also, they are all learned through interaction with the social environment."* Gross (1987)

There is, however, a concept well known in psychological circles, where attitude can become a clouded issue.

> *"Cognitive dissonance is an emotional state set up when two simultaneously*

held attitudes or cognitions are inconsistent or when there is a conflict between belief and overt behaviour." Reber (1995)

Psychologist Festinger suggested in his Cognitive Dissonance Theory that the natural desire for cognitive constancy could give rise to changes in attitude that could be considered irrational or abnormal in order to eliminate this cognitive dissonance (this is discussed in detail in chapter 9 section 9.5).

In the new private house context this may manifest itself when someone that has bought an expensive house finds out that they do not really like it, however, when asked about the house say that it is wonderful. In this way they are able to balance the strong initial desire to buy the house with the actuality of living there, resulting in an inconsistent/untrue attitude towards the house. Brehm & Kassim (1996)

The fact that the way in which attitudes are formed is *through interaction with the social environment* is interesting; it correlates well with perception in this aspect. Attitude is formed by experience of life, possibly from parental or peer group interaction, this again could be affected by modifying these external factors.

Research done by Olshavsky (1985) and Holbrook (1985) and reported by Parasuraman et al. (1988) suggests that quality forms a global value judgement that has similarities to attitude. They then go on to say that in research done by themselves with 12 focus group interviews with service consumers and reported in 1985, that:

"comparison of the findings from the focus groups revealed that, regardless of the type of service, customers used basically the same general criteria in arriving at an evaluative judgement about service quality."

Parasuraman et al. (1988)

This may at first sight conflict with the previous discussion about attitudes being

personalised experiences. But, when the attitudes concern everyday services, there is often an interchange of views between people regarding these services and thus it may be that the attitudes to common every day services are an amalgam of people's views and thus the criteria they use for judging these services will be similar. Major purchases such as new houses are not a common every day type of occurrence, and thus there is not the same level of interchange of views. Purchasers are left to construct their own attitudes from whatever previous experiences they have. According to Olshavsky (1985), Holbrook (1985) and Parasuraman (1988), it will, however, be some external factor/factors that will be the controlling factors that will eventually form a person's attitude towards quality and quality assessments.

4.5.3 Satisfaction and Quality Issues

The Oxford Dictionary defines satisfaction in five ways, and the one that would seem to be best linked to quality of products and services is: *"a thing that satisfies desire or gratifies feeling."* Oxford English Reference Dictionary (1996) The Penguin Dictionary of Psychology defines satisfaction as: *" An emotional state produced by achieving some goal."* Reber (1995) These two definitions are very similar, in that they suggest that this concept is brought about by some external factor that enables an inner wish or desire to be realised. Richard Oliver who has conducted research into satisfaction in retail situations defines satisfaction as follows:

> *"...summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the customer's prior feelings about the consumption experience."* Oliver (1981)

In this case again, the psychological state is subject to external factors and previous experiences, and is related specifically to this occurrence. It has been shown that satisfaction with individual occurrences may not have a positive effect on overall customer satisfaction:

"satisfaction soon decays into one's overall attitude towards purchasing products." Oliver (1981)

Once again we have external factors that influence the overall feeling of satisfaction produced by a product or service and this feeling again could be affected by modifying the external factors.

4.5.4 Judgement and Quality Issues

The Oxford Dictionary defines judgement in six ways, the one that would seem to be relevant here is: *"The critical faculty: discernment."* Oxford English Reference Dictionary (1996) A second and possibly better definition is: *"Generally, the process of forming an opinion or reaching a conclusion based on the available material."* Reber (1995) Once again the definition revolves around external factors, *the available material.* Judgement is essential in arriving at a measure of satisfaction or quality, the critical evaluation of the external factors that the subject considers that affect satisfaction or quality. If we consider that once identified, these factors if modified could affect the judgement of the individual in terms of satisfaction and quality.

4.5.5 Experience and Quality Issues

The Oxford Dictionary defines experience in four ways; the one that would seem to be relevant here is: *"actual observation of or practical acquaintance with facts or events."* Oxford English Reference Dictionary (1996) Reber suggests that it is: *"the sum total of knowledge accumulated."* Reber (1995) From these definitions it would appear that this is what memories are made from, the sum of stored occurrences in the conscious/unconscious mind that can be retrieved to help shape judgements on new occurrences. In terms of quality of product or service we use 'experiences' from the last time we purchased a product or service to judge how good or bad this current

occurrence is. Once again we have external factors that shape this concept, again capable of a certain amount of modification and thus control.

4.5.6 Expectation and Quality Issues

The Oxford Dictionary defines expectation in four ways, the one that would seem to be relevant here is: *"something expected or hoped for."* Oxford English Reference Dictionary (1996) Reber comes up with much the same definition: *"The anticipated outcome of a probabilistic situation."* Reber (1995) From these definitions expectations are the feelings that we have on entering into an occurrence. Expectations can be wild or sensible, but they are the mechanism that allows us to subject ourselves to experiences without fear of harm. They are based on experiences from the past and other stored knowledge that can be called upon to present a picture of what we might expect if we take a certain course of action.

The term expectation has been considered by many researchers in the quality field and in customer satisfaction literature:

> *"expectations are viewed as predictions made by consumers about what is likely to happen during an impending transaction or exchange,"* whilst the service quality literature has a different approach: *"expectations are viewed as desires or wants of customers, i.e., what they feel that a service provider should offer rather than would offer."* Parasuraman et al. (1998)

There appears to be a significant difference here, but there are parallels with the perceived glass half empty against glass half full scenario used in attribute framing by psychologists such as Aaron Beck. The expectations about what is likely to happen could be based on previous experiences which may be good or bad but indicate a previous low to medium level of satisfaction. The expectations about what should happen could be based on experience of previous medium to high levels of

satisfaction. Whatever way you choose to consider expectations, once again it is evident that they are affected by external factors that can be identified, modified, and thus, expectations can be modified.

4.6 Summary

The common theme that emerges from the 'soft issues' that have been discussed is that they are dependant on external factors of one sort or another. Thus, perceived quality could be said to be dependant on external factors. Perceived quality and customer satisfaction are themselves related directly to customer evaluation and are thus not directly measurable. Anderson & Fornell (2000) The external forces that affect perception etc., once identified are capable of being measure and controlled, and thus indirectly we could be able to measure perceived quality.

This chapter has considered the measurement of customer satisfaction and the factors that affect it. It should be noted that the 'soft issues' tend to be of equal if not more influence than the 'hard issues' when measuring customer satisfaction. Thus the 'soft issues' are of equal if not more influential on quality than the 'hard issues'. This current research is demonstrating that the tradition of measuring the hard issues in order to measure quality is probably an erroneous one. The previous chapter on QA and TQM show that the only workable definition of quality is that used in TQM, conformance to customer requirements. Thus the measurement of customer satisfaction is an essential element of the assessment of quality in any goods or services. This importance of customer satisfaction also fits the conceptual model A presented previously, the feedback loops are an essential aspect of measuring customer satisfaction and thus quality.

In the next Chapter the United Kingdom (UK) construction industry and its relationship with quality will be considered. The historical aspects will be reviewed along with

current initiatives that are being implemented in the hope that they produce an improvement in quality in the UK construction industry. The major differences between the commercial contracting arm and the private speculative housebuilding arm of the industry in terms of quality and customer satisfaction will also be reviewed. A further conceptual model B will then be introduced which will represent the current state of the UK housebuilding industry.

CHAPTER 5 - QUALITY AND THE CONSTRUCTION INDUSTRY

5.1 Introduction

Over the last three chapters this thesis has considered the term quality in its broadest sense, what it is, how and if it can be measured, and what it means in terms of cultural change to achieve a quality end product. It has also considered research into what has and is being done in different countries, in different industries in both manufacturing and service sectors in pursuit of this goal of quality. This section takes an in depth look at the concept of quality, (and how it is perceived) in the construction industry in the United Kingdom, by the government, the industry and the customer.

This chapter will look at the UK government's attitude, the initiatives from government and their impact on the construction industry. It will concentrate on most the recent initiatives the Latham Report and The Egan Report and the subsequent documentation and outcomes. The chapter will highlight the fact that delivering what the customer wants and thus quality in construction is a problem that has been given much consideration and investment at the highest level. The various review bodies have taken the best from the current literature and academic thinking and come up with some useful initiatives. The Egan Report did however stop short of applying these initiatives directly to the private house building sector due to the differing nature of each of the sector's clients.

5.2 The UK Government and Quality in the Construction Industry

United Kingdom central government has held the view that the construction industry needed to improve its image and performance for many years. This view is not the result of hearsay; the UK government is one of the construction industry's largest single customers. The government's experience over many years, and the realisation that

other industries could and had made progress in terms of producing quality end products on time and within budget made them want to take a close look at the construction industry (Latham 1994). As part of this process they set up, or facilitated the setting up of several projects including review panels and working parties to look into the problems of performance that the construction industry has in terms of delivering a quality defect free end product in the specified time and within the original budget.

Over the last sixty years this has included the 1944 Report of the Central Council for Works and Buildings chaired by Sir Ernest Simon entitled *The Placing and Management of Building Contracts*; the 1962 Sir Harold Emmerson team report entitled *Survey of Problems Before the Construction Industries* and finally Sir Harold Banwell's report of *The Committee on the Placing and Management of Contracts for Building and Civil Engineering work* in 1964. The first major review of the last two decades was the Latham report, entitled *Constructing The Team* chaired by Sir Michael Latham and published in July 1994. The report was jointly commissioned by the last conservative government and the UK construction industry in July 1993 and consisted of the findings of a joint review panel that looked at procurement and contractual arrangements in the UK industry. An interim consultative document entitled *Trust and Money* was published in December 1993 identifying the main issues of the review and inviting comment and proposals.

5.3 Latham

In his foreword Latham says the following about recommendations and problems that have been identified during the consultation process:

> *"This Final Report makes recommendations to tackle the problems revealed in the consultation process. The Review has been about helping clients to obtain the high quality projects to which they aspire. That requires better performance,*

but with fairness to all involved. Above all, it needs teamwork. Management jargon calls that 'seeking win-win solutions'. I prefer the immortal words of the Dodo in 'Alice's Adventures in Wonderland', 'Everybody has won and all must have prizes'. The prize is enhanced performance in a healthier atmosphere. It will involve deeper satisfaction for clients. It will lead to a brighter image and better rewards for a great industry." Latham (1994)

Here we have a government/industry report that seems to take on board the essence of TQM, focussing in on client satisfaction, and insisting that it is possible to enhance this aspect of the project without increasing construction costs and final project sum. Latham also acknowledged the problems of apathy with respect to the findings and recommendations of the previous reports mentioned. Whilst there had been fairly widespread agreement with the contents of these earlier reports, implementation of the recommendations was less than complete with some of the problems identified persisting to this day. He wanted to ensure that the same thing did not happen with the findings and recommendations of this report and urged the government as a major client of the industry along with other major clients to seize the initiative and help to implement all the recommendations of the report. He stressed the role of the client in achieving good performance on any project, and suggested that the government committed itself to becoming a *best practice client,* and to take the lead in providing training for its employees and to *"establish benchmarking procedures to provide pressure for continuing improvement in performance."* Latham (1994) The report goes on to mention the role of design, and states that many buildings may be over specified and thus too costly, and says that quality should be the overriding consideration in any design.

The main thrust of the Latham Report was to try to reduce the atmosphere of adversarial conflict within the construction industry. By constructing a project team early in the process, the client's requirements can be established and discussed by all

of the team. Those requirements that are deliverable are then accepted and those requirements that are not can then be modified using the collective experience of the team and then agreement sought for these modified solutions from the client. This again is the classical TQM scenario, everyone involved in the project knows what is expected from themselves and each of the other members and by when and the agreed performance levels that must be achieved in order to meet the client's requirements.

5.4 Egan

A direct result of the work begun by the Latham Report, the Construction Task Force headed by Sir John Egan, was set up. The terms of reference for the task force included the following directive:

> *"To advise the Deputy Prime Minister from the client's perspective on the opportunities to improve the efficiency and quality of UK construction, to reinforce the impetus for change and to make the industry more responsive to customer needs."* Egan (1998)

The report entitled *Rethinking Construction* was published in 1998 and in clause 1 states the following:

> *"The construction Task Force has been set up by the Deputy Prime Minister against a background of deep concern in the industry and among its clients that the construction industry is under-achieving, both in terms of meeting its own needs and those of its clients."* Egan (1998)

5.4.1 Team Work

The main thrust of the Egan report follows on from Latham in propounding the team ethos for all construction work. It again suggests that many construction clients are

dissatisfied with the work done for them by the construction industry. The industry is constantly under-achieving with clients remaining dissatisfied. The theme that the construction industry can and should learn and take examples of innovative working and efficient working form other industries is vital and well illustrated by this quote from the executive summary:

> *"The Task Force's ambition for construction is informed by our experience of radical change and improvement in other industries, and by our experience of delivering improvements in quality and efficiency within our own construction programmes. We are convinced that these improvements can be spread throughout the construction industry and made available to all its clients."*
>
> Egan (1998)

Egan suggests long-term partnerships between clients, teams of professionals and constructors, teams that can elicit from the client exactly what it is that the client needs and convert this into a scheme and finally deliver this scheme on time, within budget and with zero defects. It considers the automobile industry and *just in time* (JIT) deliveries, the increasing use of pre-assembled components and the concept of clients taking a more pro-active role within a project. These themes are totally at one with the basic concepts of TQM; this teamwork ethos is one of the main drivers that pulls the project path out to as near to the optimum path as possible.

5.4.2 The House Building Sector

When it comes to looking at the housebuilding sector, the report does comment as follows:

> *"The task Force believes that the main initial opportunities for improvements in housebuilding performance exist in the social housing sector for the simple reason that most social housing is commissioned by a few major clients. However, we would expect improved practice in developing social housing to*

affect expectations and activities in the wider housing market. Consequently we see much scope for cross-fertilisation of innovation between public and private sectors." Egan (1998)

This declaration that the main hope for improvement is with the social housing sector (see page 35 of the Egan report) is evidence that the Task Force realised the large problem that exists in trying to influence the private housebuilding sector. The private housebuilding sector and social housing sectors are driven by two diametrically opposed aims. The private sector is profit driven whilst the social housing sector is driven by the need to provide social housing for those who cannot or do not wish to buy a house. The Task Force therefore, realised that unless they could demonstrate a cost reduction as a short-term benefit, then the private sector would not be keen to try any new initiatives. The social housing sector is based on long-term finance and management, and would be interested in the long-term benefits of new initiatives. It also shows the Task Force's understanding of the basics of TQM, in that the social housing clients are aware of what their end user clients want and ensure that the developments meet both the requirements of their end users and themselves in terms of maintenance. A *professional* social housing client, is much the same as a commercial client, it is possible for a social housing management team to sit down and identify *client requirements* and set up project requirements that will drive the project and pull the process on to the optimum project path. T he T ask Force seem t o be aware of these differences between the social housing sector and the private housebuilding sector and what is deliverable. They have the hope, Egan (1998) that the public sector will influence the private sector, but the author of this thesis suggests that this will happen only if the developers find that there is a financial reason for change

5.4.3 The Client's Needs

The Task Force have also identified that fact that the industry in both sectors needs to take advice from those outside of the industry in discovering just what it is their clients really want. They suggest the following:

> *"The construction industry must also introduce independent and objective assessments of performance, comparable with the Which report or JD Power survey, that can be used by its customers to understand the industry's products and choose between them. We recognise the scale of this challenge and that it will take many years to achieve. We seek no other practical strategy that the industry can adopt to escape from the debilitating cycle of competitive tendering, conflict, low margins and dissatisfied clients."* Egan (1998)

Once again we see the Task force stressing the need for the industry to address their client's needs, moreover the Task Force suggests that the industry and their clients are poles apart Egan (1998), and therefore cannot be working together as a team in the spirit of TQM. The report says in the section *Drivers of Change* that during the months that the Task Force has met, the construction managers they have encountered show a great amount of enthusiasm for the sentiments of the Task Force, but:

> *"We have yet to see widespread evidence of the burning commitment to raise quality and efficiency which we believe is necessary."* They go on to talk about focus on the customer and continue: *"In the task force's experience, the construction industry tends to think not about the customer (either the client or consumer) but more about the next employer in the contractual chain. Companies do little systematic research on what the end-user actually wants, nor do they seek to raise customer's aspirations and educate them to become more discerning."* Egan (1998)

This is a fairly strong condemnation of the construction industry's customer relationship strategy and totally out of step with the essence of TQM. The basic principle in TQM is that the company identifies the customer's requirements and then sets out to deliver

them, if they as the Task Force says, companies do little systematic research into what end users want then they cannot start to deliver it. There are one or two notable exceptions to this criticism if it were to be made now, some companies have taken up the challenge and one company which we will look at later in the document, Mace, now has an in-depth system of both determining customer requirements and measuring customer satisfaction throughout the project and beyond. However, there is little evidence to support the position that the industry as a whole is making the fundamental changes needed to adopt this TQM principle.

5.4.4 The Housing Forum

One of the recommendations of the Task Force was the establishment of *The Housing Forum;* its brief was to look at innovation and means of improving the process in the housing sector. The Housing Forum currently conducts the National Customer Satisfaction Survey, three of which have been conducted and reported to date, this will be discussed in more depth later in the document. Another initiative that came about as a direct result of *Rethinking Construction* was the M4i project (Movement for innovation) and gave rise to the Best Practice and Benchmarking initiatives. The government and the industry forums are acting in a positive way in order to try to influence the industry, but all concerned see it as a long term project, and one which must carry along the client with it or be doomed to failure.

5.4.5 Accelerating Change

Accelerating Change is the latest offering under the general heading of *Rethinking Construction* from the Strategic Forum for Construction chaired by Sir John Egan. It was published as a consultation document in early 2002 with comments to be received by 31st May 2002. In this latest report, the Forum in the Executive summary says: *"Our vision is for the UK construction industry to be consistently world class in delivering*

products and services that maximise value for clients and end users, and exceed expectations." Egan (2002) The emphasis once again on the need for the requirements of the client to be met and possibly exceeded, this same theme continues throughout the document.

The Forum suggests that: *"Clients should take the lead when procuring construction services through and integrated team on the basis of value and quality, not lowest cost."* Egan (2002) They go on to stress in the introduction that: *"A prerequisite is that clients understand the importance of clear briefing of their supply team on the outcomes they are seeking, so that their actual needs are realised."* Egan (2002) This concept of client leadership and involvement is further stressed later in chapter 2 of the report. The Forum suggests that in order for clients to know what they want and can indeed have, they must be able to obtain independent expert advice and go on to say:

> *"It should be self evident that, for a successful outcome, clients should enter the construction process with a clear understanding of their business need, and hence the functionality they require from the finished product. They should understand what value means for them. Without these things being clear from the outset, there are likely to be changes throughout the delivery process resulting in waste, duplication and dissatisfaction for every one involved."*
>
> Egan (2002)

The main theme of this report is once again the importance of the input from the client/end user, without this detailed input the team has no criteria within which to work. It again stresses the Crosby doctrine of conformance to clients' requirements as essential in achieving what can be called a quality end product and also fully meets the essentials of TQM.

5.5 Towards Zero Defects

One initiative which was a direct result of the Latham report began in 1995, the Department of the Environment sponsored a group comprising of Taywood Engineering Ltd; Warwick Manufacturing Group; Salford University and a group of industry professionals, property owners and academics to set up a series of workshops under their Partners in Technology scheme to produce a model of a new process that would result in new buildings with 'Zero Defects'. The author of this thesis was fortunate thanks to Dr David Eaton of Salford University to be invited to attend some of these workshops as an observer. The workshops took place at the University of Warwick during 1995 and 1996.

Set in the post Latham construction productivity context, the main talking point of the first workshop was just what was meant by 'zero defects' in a building and was it in fact achievable? The definition that arose from this discussion period was that a defect was something that prevented the owner/user of a building from fully utilising the building concerned in the manner to which it has been designed. This definition caused some dissent in that it ignored some minor imperfections that may in the fullness of time manifest themselves as latent defects and thus then prevent the owner/user from fully utilising the building.

A model did emerge form the1st workshop identifying the nine key factors that formed the essence of a zero defects project. The 2nd workshop looked at the *critical success factors (CSFs),* needed in order to achieve the nine key factors, the first key factor identified was *"Defining the Clients' needs".* Even though the group were not specifically looking at TQM, the main 'ingredient' that they identified and considered was essential in any zero defect project was to have a detailed client brief. This is completely in accordance with the Crosby formula of *conformance to customer requirements* and is an essential part of any TQM process. There were nine CSFs listed in order to achieve this essential feature of defining clients needs, the essence of these CSFs was that the team needs to understand the clients business needs; that

the clients has continuing involvement with the project; that the brief is actually deliverable and has performance targets. Another essential feature was: "*Managing the process*", the CSFs to achieve this were that the project needed to be planned and the process clearly defined, with realistic targets and a comprehensive monitoring system to measure and monitor the progress of the project as well as providing a feed back loop to the clients brief.

Both of these essential features form significant parts of the conceptual model A. The client needs form the system that will manage the process and pull the project out to the optimum performance path initially, the feedback loop pull helps to maintain this optimum path and finally the measurement continues the pull against the commercial and economic pushes, keeping the project on the optimum path. As the model was based on TQM concepts, the conclusions reached in this zero defect project also mirror the basic TQM concepts.

5.6 Summary

Whether or not TQM as a useable concept is universally accepted, this chapter has demonstrated that the basic elements of TQM are accepted and keep coming to the fore in research groups and papers and that there is an awareness in both government and the construction industry that the way to improve quality in construction is through adopting TQM concepts.

Conceptual model A shows that when the TQM pulls overcome the commercial and economic pushes, the project will meet all the requirements of the customer and thus embody the required quality. What this suggests is that when two projects start and finish together in time, one producing the required level of conformance to customer requirement and thus quality and the other one does not, then one of the main controlling factors in the project that does not produce conformance to customer

requirements is out of balance. It is likely that the two projects have been subject to a similar level of *'push'* by the commercial and economic pressures, thus one of the two controlling factors in each of the models are similar yet the end result is different. This indicates that the *'pulls'* which should be generated by the client brief and measurement system are not strong enough to counteract the *'pushes'*. This means that either the client has not been consulted properly about his requirements or that the system that delivers the project has no effective measurement or feedback provision or both.

This chapter has emphasised that in the two major government sponsored reviews of quality in construction establishing client requirements and putting in place management systems that can deliver these requirements is an essential part of achieving customer satisfaction and thus quality. The next chapter will consider this scenario and apply it specifically to the UK private house building industry.

CHAPTER 6 QUALITY AND PRIVATE HOUSEBUILDING

6.1 Introduction

This will chapter consider the current state of quality management and achievement in the private house building industry according to the literature. Starting with the reactive approach to quality and its measurement both in the UK and the USA, it will then look at quality improvements in the UK construction industry overall and the apparent lack of a corresponding improvement in the private house building sector. The chapter then moves on to make the case for considering the UK private house building sector not as traditional construction but as a manufacturer of consumer goods; going on to compare it with the post war days of the British Motor Industry. The chapter then moves on to consider the warranty providers and their part in the achievement of quality in new housing. It makes the point that they are not independent arbiters of quality.

The next two sections look at the different management systems that exist in private house building and social house building, highlighting the differences when working for professional and non-professional clients. The next section looks at customer satisfaction in the UK house building sector, the problems of measuring it accurately, the public perception of quality and the house building industry and the problems caused by not having accepted criteria by which to measure it.

The chapter concludes with a short section on the current state of the UK house building sector and introduces Conceptual Model B which represents the current position of the UK house building sector.

6.2 Measuring Quality

The Building Research Establishment (BRE) published a paper in 1993 entitled *Quality*

in new-build housing, the basis of this paper was that in conjunction with the then warranty providers and housing associations 18 sites would be inspected and studied. The report concentrated on technical faults, and as can be seen by the title of the paper quality was directly related to the number of defects found in a property. The major difference between this study and the zero defects project is the type of defect. In the BRE study technical defects were identified, in the zero defects project the defects that affected the quality of the project were items that did not conform to clients' requirements.

6.2.1 The Reactive approach to Measuring Quality

As demonstrated by the BRE study, the industry has traditionally taken what might be called a reactive approach in assessing quality in new housing, the main instrument of measurement has been either the number of technical defects as with the BRE study or by the collating of the number of complaints to the warranty provider. This type of measurement does not conform to the concept of TQM, where conformance to customer requirements is essential to ensure a quality end product. This reactive approach is also perhaps an indication of the difficulty of defining and measuring quality that has resulted in an industry-wide reactive approach to quality rather than one of pro-activity. Both the UK warranty providers rate the builders and individual sites on a range of criteria, but due to the fact that they are in business to provide structural warranties, the number of defects and the number of claims against warranty are their main concern as these affect their financial risk. Thus any quality rating for individual sites or builders must use these criteria in the decision making process and thus be reactive to some degree.

This reactive approach is not confined to the UK industry, in the United States; Pulte Homes a national housebuilder was awarded the 2001 and 2002 Summit Award for outstanding quality and customer service. The award was made by Professional

Warranty Service Corporation (PWC) and Zurich Insurance, the 2002 award was made on the following basis: *"Pulte homes was selected for the 2002 Summit Award due to its low ratio of customers requesting further warranty assistance from PWC. Of homeowners enrolled, less than 1 percent has ever contacted PWC for assistance."* Pulte press release (2002) The same press release goes on to quote Mike Burns the Executive Vice President of PWC: *"Pulte Homes' record of less than one request per 10,000 home warranties issued is astonishing. Their dedication and commitment to delivering a quality product and in delighting the customer is a great model for other homebuilders to follow."* Burns (2002)

If this reactive approach could be seen to be working, with customers feeling that the standards achieved in their new homes are as high as, or an improvement on the standards displayed in the show home, then this approach could be justified. The show home is important, it is the only indication to the potential customer as to the quality of new home that he/she may expect from this particular builder and thus the customer should be able to expect that their new home will be at least the same quality as the show home. From the quantity of questioning articles in the press, including the trade press such as Building Homes February 1997 - faulty foundations; Building December 5th 1997 - major house defects; Building June 18th 1999 – major house defects; Contract Journal August 4th 1999 and also based on the reactions encountered by the author of this thesis from new private home owners when asking about quality in their new houses they are not finding the quality of their homes to be the same or better than the show home. The number of new house purchasers complaining about problems they are having with their new home, does not appear to be decreasing significantly, according to the HF/MORI polls. What is more the type of problem that they are experiencing is in many cases are the same things that new home owners have been complaining about for many years and was identified in the BRE research paper.

6.2.2 Quality Improvement

In the Construction Industry Board (CIB)/Building report entitled *'The Improving Performance of the UK Construction Industry'* published for National construction Week in April 1999, we were told that the commercial/contracting sector of the industry had steadily improved its performance in terms of delivering customer satisfaction with the overall service provided by main contractors by 16% since 1995. If this is the case why does the private housebuilding sector not seem to have made the same magnitude of improvement in quality? In fact since the introduction of the Housing Forum National Customer Satisfaction Survey in 2000 the opposite seems to be the case, although the overall satisfaction rating has remained the same at 87% (this aspect will be discussed later in the document), the number of people who would want to buy another new home from their builder has dropped from 56% to 54% in 2001. Those that would recommend their builder to others dropped from 52% to 49% in 2001 and more people experienced defects at 84% compared to 81% in 2001. The Housing Forum chief executive David Crewe is quoted in Building as saying, *"Buyers remain very satisfied with the quality of the internal design and layout of their new home, its external design and appearance, and security measures."* Crewe (2002) When compared to the tables in the CIB/Building report the author of this thesis suggests that Housing Forum results do not demonstrate the same quality improvement in private housebuilding as in the commercial/contracting sector.

Could this apparent difference in quality improvement be due to fundamental differences in the way in that these two sectors of the industry work? When clients in the new private housebuilding industry complain about 'quality', are they being unreasonable in their expectations of the end product? Is quality perceived to be a different concept in some way by these two sectors? What does one sector do that the other one does not? Is the answer to stop comparing these two sectors and look further a-field, perhaps consider houses as consumer products and look at what

manufacturers of consumer goods have done to improve product quality? The Construction Task Force, headed by Sir John Egan, published their report showing comparisons between construction and manufacturing industries and indicated that similar efficiency gains could be possible from construction if it adopted some of the manufacturing industries' processes. In fact they list a table of major construction clients and companies showing how they have reduced project and running costs by better planning and cost control, achieving value for money not on a lowest price basis but using value management and life cycle costing to make tender decisions. If we now accept that this comparability between construction and manufacturing does exist, should we go one step further and break the tie between commercial construction and private housebuilding?

6.2.3 Private Housing 'v' the Commercial Sector

Let us consider the two sectors of the construction industry; the commercial/contracting sector generally constructs specific buildings for specific clients, using drawings and specifications. In this scenario the drawings and specifications have been derived from detailed discussions with clients, all of the client's requirements will have been identified and the resulting design should in theory represent the optimum solution. The commercial sector tends to build 'one off' structures, which are normally constructed on land either owned or leased by the client. The construction costs of a commercial building are paid for by the client, on either a monthly valuation or stage payment basis, or as in some private finance initiative projects, where the construction costs form part of the monthly rental sum paid by the client when he takes possession of the project.

The private housebuilding sector on the other hand builds houses speculatively, the developers decide on the type and number of houses on a site and then offer them to the public for purchase. There is no detailed end user client brief; the developer is in

this case the client. They are built to a predetermined specification with some options and are standard types that are often repeated on the same site. The developer normally owns the land, but then sells off the land with the house that sits upon it as an individual plot to the house purchaser who is the end user. The end user client then pays for the house when it is completely finished, or if the purchase contract allows when the developer says that it is completely finished.

Thus, there are some quite fundamental differences between the two processes, in contracting the client who is often the end user or building manager has an input into the design and construction of the project from day one. He retains effective financial control of the project; he has the rights not to pay for defective work in the valuations. He can in some circumstances levy liquidated damages on the contractor if the building is not completed on schedule and with most contracts can hold a retention on the builder for a twelve month period after completion of the building. In private housebuilding, the client pays in full for the whole building on completion or he does not gain access to the building. He has little or no control over the process and certainly not over the final completion date. He is in fact buying a product from the developer.

6.3 Houses as Consumer Goods

Would it then be acceptable to consider the private housebuilding industry as a manufacturer of consumer goods just like Ford, Hoover, Sony and Compaq? What justification do we have for this? Is the link to construction less significant than the link to consumer goods? Chris Lorentzen, of the Association of New Home Owners (ANHO) in his paper *'A Challenging View of Building Control'* delivered at the Association of Building Engineers 1996 conference in Bournemouth said: *"I have drawn on comparisons related to consumer products. A home is a consumer product, albeit a very expensive one."* Lorentzen (1986) Further support for this link is provided by the Chairman of Wimpey Homes whom in a statement attributed to him said that the

company now saw its main core business as being that of selling houses, this is further reinforced in the marketing section of Building Homes October 1998 when they describe Malcolm Pitcher as the man who: *"helped turn Wimpey Homes from a housebuilder into a retailer"*.

Egan (1998) in his report refers to the automobile industry as an example of good practice, are there any similarities with housebuilding? The automobile industry also builds a proportion of production speculatively; each manufacturer builds cars within certain size groups, specification levels and price ranges. The customer can go to many different outlets to buy the car, and choose the specification he/she wants from all the domestic and imported cars, they then pay for it on delivery. The similarities between a house and such as a motorcar would appear to be greater than a house and a one off commercial construction project. This being the case, and bearing in mind Egan's manufacturing link, should we then use the consumer goods manufacturing industries' quality considerations when considering quality in new private housing?

The UK domestic housebuilding sector still enjoys a position similar to the one that the UK domestic automobile industry enjoyed in the 1950s and 1960s. During this period the automobile industry suffered little or no outside competition, provided that each manufacturer kept up with their domestic rivals there were no problems. The market was buoyant, people wanted cars and to some extent customer had to accept the product that the manufacturers wanted them to have, regardless of whether it met their requirements or not. Things changed when the Japanese targeted first the motorcycle industry and then the British automobile industry. The reason for targeting the British market was that it produced cars that were right hand drive just like the Japanese domestic market. This gave them a distinct advantage over other foreign automobile manufacturers, as they did not have to re-tool and make right-hand drive cars just for the UK market. The Deming/Juran inspired Japanese quality levels proved to be an advantage in this market that were widely exploited by the Japanese to produce

dominance in the UK market. This emphasis on quality in the Japanese product may have led directly to the fall in market share of some of the domestic manufacturers who did not appreciate the importance of quality issues. And according to the annual J.D. Powers new car quality surveys, a dominance that still exists today which is more than can be said for most of the British automobile industry, according to the 2001 J.D. Powers UK Car Customer Satisfaction Study out of the top ten models the Japanese and specifically Toyota/Lexus took 1st; 2nd; 3rd; 5th and 10th places.

6.3.1 Private Housing and the British Motor Industry

The analogy of the private housebuilding sector being similar to the British motor industry of the 1950s and 1960s is not an absolute, but on the whole the author of this thesis feels that it is justifiable stance. The private housebuilding companies enjoy a domestic market with little or no serious competition; most people still buy new houses based on their location and not on who has built them. In discussions with homeowners the author of this thesis found that the main reason for buying a new home was that it was in the location that the customer wanted, the name of the builder was to some extent irrelevant. The private housebuilders' main problem is to keep up with their rivals in terms of design and not suffer a significant disadvantage in this 'captive market'. Like the motor industry of the '50s and '60s it tends to rely on faults being detected by *end of process inspection*, 'snagging' and remedial work are the norm. Even the method of payment for the production workers is similar, '*price work'*, payment on the number of units produced and not necessarily based on the quality of unit produced.

The automobile industry did use trained quality inspectors for end of process inspections, private housebuilding leaves this end inspection process to untrained personnel – the purchasers. Thus if the purchaser does not notice a fault on the inspection visit it may never be picked up or rectified. The private housebuilding

industry warranty companies do try to exercise some control over housebuilding, they make periodical inspections of the houses under construction. They can and do list any work that does not conform to their specifications or to the building regulations that is seen on the visit, but they then have to rely on the word of the builder's site manager that these non-conformances have been rectified before the work continues. It may not be possible to see the area that contains defective work once the process of construction has continued.

6.4 The Warranty Providers

The housebuilding industry warranty companies have produced regulations and specifications that are in addition to the statutory building regulations, but they are not based purely on customer requirements. The level of adherence to these regulations and specifications within the industry is a matter for conjecture; the warranty companies measure success/failure in terms of number of claims against the warranty. They maintain a database of warranty claims and builders are rated in terms of the risk they pose depending on their claims record and this rating may affect the premium that they pay per house for the warranty. This measure of success will not, however, consider the claims and complaints that are not specifically warranty items, and this is a large area that concerns the finishes of the home. The author of this thesis has found that it is precisely this area of finishes that the customer is most concerned about and thus it could be argued that the regulations and specifications do not truly represent the customer's requirements. They are not customer requirements in the TQM sense, they are devised by a committee made up of industry and consumer groups, but need industry consensus to be accepted and applied. The ultimate aim of the warranty companies is to ensure that the structure of the building remains intact and serviceable for at least the 10 years duration of the structural warranty, the warranty companies are not independent arbiters of quality for the house buying public.

The warranty companies have little practical control over the developers, they could in theory withhold the warranty from a property until remedial works were completed, but most of the time as mentioned previously they have to take the word of the developers' site manager that the remedial works have been carried out. This situation is illustrated by the following quote from an anonymous report by an ex-NHBC inspector passed on to the author of this thesis by Chris Lorentzen of ANHO: *"All defective work and bad practices observed by me during this period was recorded as N.H.B.C. required. Remedial action was requested to be carried out in accordance with the applicable clauses of the N.H.B.C. standards by both written and verbal communication to the site manager. On my next visit I would check the S.V.R. sheet and if the site manager had signed the defect sheet, indicating that the remedial works had been carried out. I had no option but to accept this signature, even though on many occasions I had grave doubts that the remedial works were ever carried out. What led me to believe this to be the case, was that in some cases I found it had not been carried out, in others, I believe the remedial work could only be carried out by taking down and rebuilding and I never saw any evidence that this happened. Furthermore the same defects re-occurred on plot after plot, after plot and the cost involved in correcting these defects would have to be borne by the builder and would not make financial sense."* Anon (undated)

The doubts expressed by the inspector seem to be well founded, there have been many high profile problems in the private housing sector over the years.

These problems, whilst not as highly publicised as some of the major projects that have gone wrong such as the Dome and the Millennium Bridge, have been just as serious for those owners involved. Within the last ten years there have been some quite notable examples of serious problems in new housing. A site just north of Manchester where 26 houses were demolished due to the fact that they were all subsiding and at differing rates, some were out of level by as much as 150 mm, Greenberg (1998) Houses built in Hertfordshire with defective foundations, Pollock (1997) An estate in Ashford Kent, where families were plagued with major defects, King.(1998) A

Worcestershire village, where owners had catalogued scores of unresolved problems, Jones (1997). A development in Cumbria, where the local MP became involved in trying to help the owners get their problems with their new homes resolved, King (1998) In one case it is claimed that the warranty company provided copies of inspection records that proved to be incorrect and brought into question whether the inspections had in fact taken place, Glackin (1999) Further evidence for this question is the number of complaints regarding unfinished and poor quality work made by customers when buying new houses, with the 2000 Housing Forum/MORI poll reporting that 81% of those interviewed had experience of defects or snags and 48% reported that the number of defects/snags was more than they expected (HF/Mori 2000).

If the current surveys are still finding that customers are experiencing faults in new houses, and as the BRE found in 1993 and the ex-NHBC inspector reported, the faults are the same ones that have been found on a regular basis in new houses, then either the warranty providers are missing the faults or the housebuilders are not supervising the construction of houses carefully enough. As already discussed, the warranty providers do make inspections, they note defects and report them to the site manger, they have no rights in terms of inspection of remedial work. It must also be recognised that their responsibilities only extend to the items that are specifically covered by their warranty, they are not as stated previously independent arbiters of quality. Thus the responsibility for these faults must lie with the private housebuilder and specifically with the site management.

6.5 Private Housebuilding Management

Site managers with Construction Management degrees are a relatively new concept in private housebuilding, the traditional route to becoming a site manager was through a trade, promotion to trade foreman and finally site manager. Whilst there are seen to be many advantages in promoting craftsmen to manage sites, it has been suggested that

without some management training they would, in the long term be at a disadvantage to academically graduate managers (Farrell 1999). It has been considered that the academically qualified graduate managers though initially at a disadvantage due to their lack of practical experience, will within a few years be able to correct this deficit by observing at first hand the theory they learnt at university. The graduates already have the management theory, health and safety legislation and planning techniques knowledge and again after a few years in an assistant role, will have been able to put this knowledge into practice and hopefully become proficient and competent site managers. The craftsmen that have been promoted, though they have a certain amount of practical knowledge, often purely specialised knowledge depending on their craft b ackground, j oinery, b ricklaying e tc., m ay n ot h ave t hese i mportant a nd u seful attributes. These attributes can be imparted to the craft trained managers, if the company so wishes by sending them on training courses. This does happen in some of the more enlightened companies, but not as a general matter of course.

It is still possible to find site managers on private housing projects without qualifications of any sort, labourers that have shown willing to take on responsibility and shown some sort of organising capability. They may have none of the health and safety knowledge needed to run construction sites or knowledge of why certain things need to done in a particular way. This situation will continue whilst there is no statutory requirement for site managers to have some basic level of both practical and supervisory training, such as a certificate of competence in site management.

The author of this thesis has many years experience in the private housing sector and knows of many such managers, who though very knowledgeable in their own craft field, they do not have the same understanding when it comes to other trades. This can even apply to their attitude to those in their own trade, they often assume due to their own level of competence that all other joiners/bricklayers have the same knowledge and e xperience. The a uthor o f t his thesis h as often h eard t his type o f s ite manger

giving incomplete instructions to men of the same craft back ground, the justification being that they are time served joiners/bricklayers and as such should know what they are doing. The obverse holds true when they are dealing with other trades, the incomplete instructions are still given, but this time they are a sign of their own lack of knowledge. In these cases the managers are at a real disadvantage, they lack both technical and managerial expertise and in the absence of the very best quality tradesmen the quality of the end product may suffer.

Egan noted in *Rethinking Construction*, the Task Force hoped that the private housing sector would take notice of the improvements in quality made in the social housing sector and make similar efforts. The author of this thesis has had extensive experience in both the social housing and private housing sectors of the industry and found inconsistencies in the level of quality achieved between the social housing sector and the private housing sector, the higher standards being achieved in the social housing sector. Why then can the social housing sector produce consistently better quality houses than the private housebuilding sector? The same workmen and management that build new private houses can also build new social housing, so where is the difference between the two processes?

6.6 Social Housebuilding Management

The main difference seems to be the fact that the client who is commissioning the building is what we would call a professional client. The social housing clients manage large portfolios of houses and have a range of different end user clients with different requirements and expectations. They have over the years refined their requirements so that the new homes that they construct meet the requirements of both their end user clients and the requirements of their maintenance managers. They are built on a

contract basis with client supervision provided by either the project architect or a clerk of works; the client has financial control of the project. In this way the project from inception to completion can be designed to meet the client's requirements in full. The level of supervision required to meet exacting client briefs can be higher on new social housing schemes that on new private housing schemes. The social housing schemes meet the requirements of TQM more fully than private housing schemes.

The quality checks and financial control in social housing that the clients has in place, has resulted in the builders when taking on social housing projects installing a site management system that takes account of these clients requirements. This QA type management system is designed to use these client's requirements as a balancing force to the economic and other pressures that exist in the industry and can if unchecked lead to defects in the houses. Whilst there is literature concerning quality and especially quality systems in the contracting sector, there is little specifically devoted to quality in the house building industry. The role of QA improvement in the contracting sector of the construction seems to be a popular topic for authors, the same level of interest is not apparent in the private housebuilding sector. There are new private housing companies with QA systems, but as the author of this thesis was told recently by a contact currently working for a large national private housebuilder, all semblance of adherence to the company QA system disappears when the company's financial year end comes round. Targets for completion at this time of year become the main motivating factor and all other issues such as quality inevitably suffer in the rush to complete the required number of houses to meet financial targets.

6.7 Customer Satisfaction

Whilst QA systems do exist in the private new housebuilding sector, the author of this thesis would argue that the next step, TQM does not exist. There does not even seem to be an appetite to embrace the basic concepts of TQM, Tim Mills, market researcher

and advertising specialist writing in his article *'Knowing you customers'* in 'HouseBuilder' magazine October 2000 says:

> *"I've been amazed by the lack of even the most basic consumer data held by many of the housebuilders I've worked with over the past five years. There appears to be a widespread ignorance of even the most basic consumer-research techniques.....But I would guess that many housebuilders are not 100% committed to the research process and this is often the reason why so little research is conducted".* Mills (2000)

As previously stated the chief executive of one of the major private house building companies said that the company now saw its main core business as being that of selling houses. Many of the large private housebuilding companies now seem to have very efficient sales departments offering attractive overall packages for the new house buyer, consisting of part exchange, low deposit schemes and guaranteed mortgages. This is borne out by comments received during the course of the research, the sales departments seem to have done research into what 'their' customers want in terms of deals.

Could it be that this preoccupation with selling house has led to what has been described as *"Industry Myopia"*? He comments that his experiences have been:-

> *"indicative of a general insularity and myopia within the industry – many housebuilders subscribe to the view that 'We know what the punter wants, so why pay somebody to tell us what we already know?'"* Mills (2000)

Mills rounds of the article with the following passages:

> "*The closer an organisation comes to the people to whom it's selling, the less likely it is to be caught with products or services that fail to meet the customers' needs.*

Such an approach has profound implications for any organisation (and, of course for the role of the research industry itself). But, for the housebuilding industry, such an approach would involve a gigantic cultural shift – from the all too-common present position, where the view of the customer is rarely sought, to one where the customer is at the heart of the business and strategy formulation. And housebuilders can not bury their heads in the sand and hope other industries' ability to excite and surprise will not affect them - customers will expect to have their needs met in unexpected ways by everybody who delivers a product or service." Mills (2000)

6.7.1 Public Perception

This lack of work by the industry has led to the private housing sector having a less than flattering public image, the majority of the purchasers to whom the author of this thesis has spoken, and the ones that have responded to the questionnaires have all indicated that *"the builder was very good 'until they get your money!' and then seem to loose interest."*

The public perception of housebuilders even by their own admission is one of mistrust. Research by Richard Eagleton who runs the Design and Marketing division of Wilson Connoly, one of the most highly rated private housebuilders in the HF/MORI league tables, published in an article in Contract Journal March 2001, has highlighted the fact that the public perception of private house builders is no better than that of car salesmen; politicians or estate agents! He is quoted as saying: -

"We would like to have seen housebuilders emerge with a similar trust status to doctors and mutual building societies, groups that the public views as 'looking after me.' Being ranked alongside car salesmen is not where we wanted to be: we'd have liked to have been propelled into stratosphere to get away from

them. There is a great opportunity for house builders to get this right. Remember that housebuilding is the last big manufacturing industry in the UK."

Eagleton (2001)

Thus the potential for damage arising from one exaggerated bad occurrence can be much greater than may be expected. The respected team of researchers into customer satisfaction and customer loyalty, Zeithaml, Parasuraman and Berry have cited some pertinent findings in a paper written in 1990 conducted in the US into customer satisfaction/loyalty. In any group of customers, only 4% of those that are dissatisfied actually complain, the other 96% of those who are dissatisfied merely tell on average another 10 people about the experience Zeithaml et al. (1990) Pitcher (2001) has applied this concept to the Housing Forum figures, and the potentially this is currently happening in the housebuilding industry.

6.7.2 Customer Requirements

These concepts have been acknowledged for several years, in fact they have been considered in respect to the new housebuilding sector. Gann et al. have suggested the following: *"there are few major industries in which consumersi requirements are so poorly catered for. New housing is delivered in a way which largely accommodates the constraints of producers, rather than satisfying the needs and aspirations of consumers."* Gann et al. (1998) Barlow suggests that whilst the private housebuilding companies are aware of increased customer demands their response is: *"limited to slightly greater choice over fixtures and fittings, faster product redesign, and better systems for dealing with complaints."* Barlow (1998) It could be argued somewhat cynically, that in the housebuilding sector, what gets measured gets managed and

anything else is ignored. Looking at the Housing Forum/MORI (HF/MORI) poll results there seems to be little positive movement over the last three years in any of the areas identified.

From the available literature it would appear that we do have some reasonably universal concepts about what constitutes 'Customer Satisfaction'. These concepts are not really new; most have been around since the early 1990s, and are now ten years old. Other industries seem to have picked up the concept and to be producing good improvements in overall customer satisfaction with their products such as British Airways and IBM, Bank (1992). Whilst the same cannot be said for the housebuilding industry in the UK, parts of the US housebuilding industry would appear to have grasped the concept wholeheartedly. Does this indicate a concept that can work when applied to private housebuilding?

Malcolm Pitcher quotes the top US housebuilder Estridge Homes saying: *"If you are a 500 unit per year homebuilder do you want to end up delivering to 500 different expectations or just one expectation? 500 different expectations is what you get when you don't take time to communicate with your customers."* Pitcher (2000) It is only by engaging with customers in real meaningful dialogue can their perceptions and aspirations with regard to a product be fully ascertained. The process, however, is not a 'one off' process, it is one that requires leadership from the top and be a continual process. As Buzz Hoffman, the CEO of Lakewood Homes in Chicago says in the same article by Malcolm Pitcher in Building Homes: *"A fish stinks from the head. If you're not seen to be committed then those around you will also not be committed".*

Pitcher (2000)

It would appear what is needed is a real desire to identify, quantify and respond to

these customer satisfaction perceptions, for the UK private housebuilding industry to be reaching the sort of satisfaction results enjoyed by the best US housebuilders. The 2000 survey results (HF/MORI) indicate attitudes in the private housebuilding industry that show that there is still a certain amount of reluctance to taking this course of action. It would appear that the industry is still unconvinced of the economic benefits of such actions in what they perceive as a seller's market. This reluctance could be due to the relative monopoly that UK private housebuilders enjoy in popular locations. This, along with a situation of over demand for new housing, is a major potential disincentive for the builders to change their attitude towards customer satisfaction perceptions.

6.7.3 Quality and Public Perception

How does this relate to quality in private houses? It would appear that perceptions of the '*real world*' might be governed by past experiences however faint that have left some memory trace. The impressions made by current stimuli however accurate or inaccurate they may be interpreted will be affected by this memory trace and our current state of mind at the time we make any judgements. If this is then applied to the quality aspect of goods or services, we find similar ideas, for instance Parasuraman et al. from work done by Zeithaml in 1987 say: *"Perceived quality is the consumer's judgement about an entity's overall excellence or superiority."* Parasuraman et al. (1988)

Perception is therefore about making judgements based on external factors that have and do affect the way we *'see'* things. In perceptions about quality, the external factors that affect judgement may be the key to measuring perceived quality. If these factors could be identified, their effects could then be measured. Once they have been identified, they could be modified, which may then modify a person's perception of

quality. This could be a significant issue in 'Perceived Quality' in private housing.

For example Torbica and Stroh have conducted research into homebuyer satisfaction in the US, they concluded that: - *"There are, however, no commonly accepted methods of measuring customer satisfaction in the construction industry."* Torbica & Stroh (2000) This correlates with other researchers such as Anderson and Fornell (2000) in their views on the measurement of customer satisfaction. Torbica & Stroh also concur that homebuyer satisfaction is a product of both product and service: *"Every product and service must be designed, produced and delivered in the context of a total package of products and services-it is the 'total offering' that generates the total degree of customer satisfaction. This is important to emphasize, for far too often home builders have only looked at the core offering ('we are building houses') and have overlooked the service part of their offering."* Torbica & Stroh (2000) In this respect the US industry seems to have some common ground with the UK industry. In the development of their instrument for the measurement of homebuyer satisfaction, Torbica & Stroh considered many of Parasuraman and his colleague's concepts of service quality. They state that: - *"It is seldom clear which attributes of a product and service are important to a customer and how those attributes are related to satisfaction."* Torbica & Stroh (2000)

So, how does this relate to measuring quality and customer satisfaction in new private houses? The only way quality can be systematically improved is by first finding out what it is that the customer thinks is important in their new home buying experience. Satisfying customer requirements is a core concept in TQM, and the only way to conform to this concept this is to firstly find out what it is that the customer wants and

then to deliver it.

6.8 The Current Position in UK Private Housebuilding

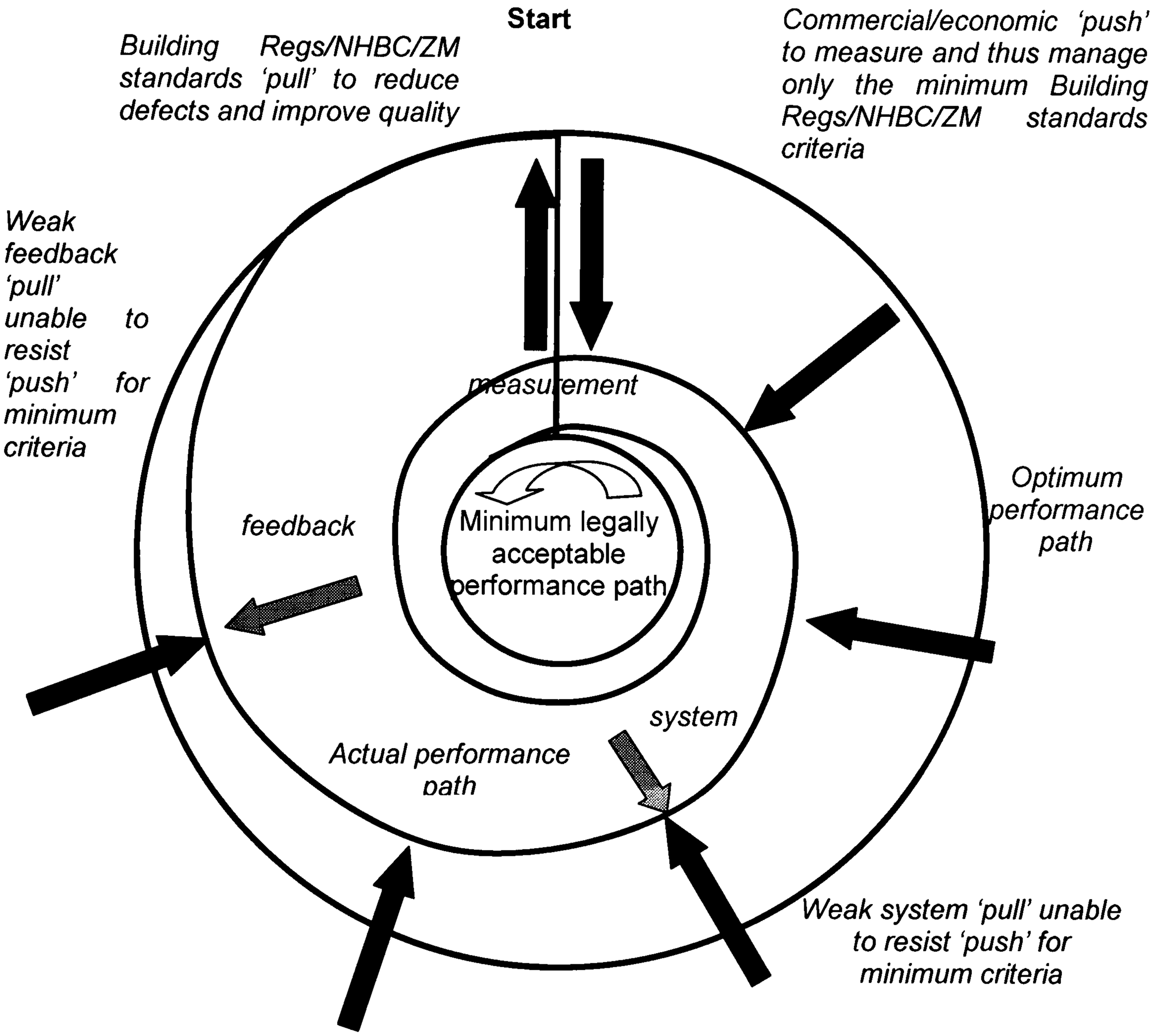
Thus the picture we see emerging from this section is one where conceptual model A derived from the literature on TQM would not apply. The controlling factors that put the project on the optimum path may be present at the start of the project, but are missing as the project progresses. The project commences and almost as soon as it has commenced we notice that the optimum path begins to decay due to the fact that once the initial plan checking and foundations are inspected the Building Regs/NHBC/ZM 'pull' is less than the commercial 'push'. Missing from this model is the 'pull' that comes from the client's requirements that can counteract the commercial 'push', as discussed previously. The feedback 'pull' from Model A is diminished due to the fact that any feedback that comes from the homeowner is not related to the client's requirements, they have no set of standards by which to judge the end product other than what they saw in the show house.

As the author of this thesis has found in talking to customers, this show house standard is not always achieved on the rest of the development. The system 'pull' is not designed to manage the project to achieve more than the minimum requirements of the building regulations and the standards set by the NHBC and ZM. Again we have seen that these standards are not always achieved, and when they not achieved we have no way of knowing whether the required remedial works have been carried out correctly. Within the UK private housebuilding sector there seems to be no real interest in the concept of TQM. As stated by Mills, the industry thinks that it knows what the customers want and is not interested in investing money in research to find out if their thoughts of what the customer wants are true or not. It could be argued that as long as new houses continue to sell they are quite happy in their ignorance.

6.8.1 Conceptual Model B

Conceptual model B is derived from the current state of the UK private housing sector and the literature written about it. It falls far short of the ideals of TQM due to the lack of end user customer requirements.

Conceptual Model B: The way the House Building Industry Currently Manages Quality



This model also differs from model A in that it goes in the opposite direction, instead of starting with the customer's requirements and designing a system to deliver them, it starts from the basic measurements of building regulations and warranty provider standards, it then uses what little feedback it gets from the warranty inspectors and customers to define the management system it needs to complete the project. The main dominating force in this model is that of commercial and economic 'pushes' and

not that of delivering the requirements of the customer that is the essence of TQM. In this model the push to reduce defects, results in systems that measure against the limited criteria of technical aspects such as the building regulations and warranty provider standards. The systems and feedback loops being weak are unable to resist the commercial push to measure and thus manage only the minimum criteria and thus the performance path decays in a spiral until it reaches the minimum acceptable performance path. The model does consider customer requirements as a major part of the system controlling the process, however, the strongest part of the system is the commercial pressures of city institutions and shareholders to return a profit.

6.9 Summary

In this chapter the thesis has considered the private housebuilding industry and its attitude to quality. The fact that the same defects are being found now as have been found for many years demonstrates that what ever the major house building companies in the industry say they have not taken the concept of quality to be a core value in their businesses. It has placed the responsibility for the management of the house building process and the prevention of defects clearly on the shoulders of the house builders. The chapter has shown that the industry has not engaged with their customers to find out what they want from their new house, perhaps being lulled into a sense of security by their virtual monopoly of locations. It has demonstrated the need to break the link between house building and the commercial/contracting sector as new houses have more in common with consumer goods albeit very expensive consumer goods.

It has mapped out the current position of the UK house building industry and how quality has become subservient to the commercial pressures of financial year-end completions. It has introduced Conceptual Model B that is a visual representation of the current state of the sector and its attitude to quality.

Over the last chapters the thesis has considered what quality is, the historical background, how it is viewed in other industries, an overview of some of the research that has been undertaken into quality, the concepts of QA and TQM, customer satisfaction and the construction industry and quality. The picture that emerges is that whilst quality is a difficult concept to define, there has been sufficient research and systems developed for many other industries to work towards a real improvement in quality. The contracting and social housing sectors of the construction industry have also been able to demonstrate quality improvements the exception to this general flow seems to be the UK private housebuilding industry.

This then sets the research question in context; the rest of the construction industry can and has made measurable improvements in quality, whilst the private house building sector has not. Thus validating the research question of why in the UK private housing sector does the buyer not get the quality of new home they want?

The next chapter sets out the methods chosen to answer the specific research question, specified objectives and hypothesises that this thesis sets out to answer and how the methodology was determined and has evolved during the process.

CHAPTER 7 - THE RESEARCH DESIGN.

7.1 Introduction

This investigation needed to be able to answer the specific research question of why in the UK private housing sector does the buyer not get the quality of new home they want? It must also be able to address the four objectives as set out in the introduction and reproduced below:

i. To assess the level of quality achieved by the UK house building industry from the point of view of the customer.

ii. To establish the basis for a set of customer derived criteria for the assessment of the quality of the completed house.

iii. To produce some conceptual models that demonstrate the construction processes and show the factors that affect the achievement of acceptable levels of quality.

iv. To investigate what lessons could be learned from other sectors and academic disciplines in how they have dealt with quality, its definition its delivery.

This chapter will detail how the investigation has been designed and carried out in order to answer the research question and address the main aim and four specific objectives.

7.2 Addressing the Research Question

Models A&B from the chapters 3 and 6 are indicative of the fact that there is a significant difference between what can be achieved and what is currently being achieved in terms of customer satisfaction and quality in new private housing. The author of this thesis suggests that these models show that the private housebuilding companies have not reached the same level of sophistication in terms of customer

satisfaction as other industries such as the automobile industry. Why the private housebuilding industry has been so slow compared to other consumer goods manufacturers to embrace the basic TQM concept of satisfying customer requirements has been the cause of speculation. The virtual monopoly on any specific location and the buoyant sales figures are the researcher suggests two of the main reasons. Mills (2000) writing in the housebuilding trade magazine commented that the private housebuilding industry did not currently see the need to do any serious research into what the industry's customers really wanted, a situation justified in the eyes of the industry by buoyant sales figures.

However, if sales are buoyant is there really any problem? It is unlikely that there will ever be any real competition in this industry, the availability and size of individual plots of land in the UK is not sufficient to allow more than two/three builders to build in any one area. Even then the demand for new houses is such that each of the builders is able to sell their homes without difficulty and thus do not need to complete with each other. The mere fact that they agree to develop large sites jointly would suggest that there may have been a certain amount of discussion and agreement about what each of them intends to build and how this will impact on the other members of the joint venture. Currently there would seem to be little benefit to be gained on the part of private housebuilders to address the TQM concepts and address the question of how well they relate to their customer's needs.

7.2.1 Housing Forum/MORI Surveys

The 2001 HF/MORI survey showed that 87% (same as 2000) of new homeowners were satisfied with their new home; perhaps the builders do know what their customers want. Going back to the Kristensen et al. (2000) research, perhaps the 'hard' issues are being addressed. The HF/MORI survey tells us that in 2001 84% (a 3% increase on 2000) of purchasers had defects and snags when they moved in and in 2001 53%

(a drop of 1% on 2000) were happy at the service given by the builder in rectifying these defects and snags. The overall owner attitude was less positive towards newly built houses, with only 49% in 2001 compared to 52% in 2000 prepared to recommend their builder to others, and 54% in 2001 compared to 56% in 2000 would want another new home or one from their builder. This would perhaps indicate that the builders are not addressing Kristensen et al. (2000)'s *'soft issues'*. In the opinion of the author of this thesis, these *'soft issues'* are the ones that have the potential to affect the attitude of the customer towards the *'hard issues'* such as defects etc and whether or not they will buy a new house. These *'soft issues'* are the ones that need to be identified, they form one objective of this research; finding out what the customer considers to be important in the housebuilding and buying process. It is only when this information is available that the housebuilders can begin to start addressing the *'soft issues'* and improve the customer rating in the areas that are currently on or below 50% in satisfaction terms.

7.2.2 Achieving a 'Win-Win' Situation

In order to persuade the private housebuilding industry to make this major change there must be some form of enticement, it must be seen as a 'win-win' situation, a win for the customer and a win for the builder. In this way the city institutions that back the major private housebuilders will see the benefit and back the companies in the process, it may even get to the stage as Andersen and Fornell suggest: *"Satisfied customers can therefore be considered an asset to the firm and should be acknowledged on the balance sheet."* Andersen and Fornell (2000) The author of this thesis would suggest that this information if available would make a difference to share prices and thus spur the private housebuilding companies to do something about improving their low customer satisfaction scores.

Addressing this area, the *'soft issues'* would be a further step towards meeting the concepts of TQM; it would identify the customer requirements and allow the companies to take steps to meet these requirements. As stated, this investigation is an attempt to identify and quantify these *'soft issues'* and thus place customer requirements in the private housebuilding sector on the agenda of the major private housebuilding companies. It will also go some way to meeting the original aim of this research of investigating the level of achievement of quality in new build UK private housing finding ways in which quality in new private houses can be improved.

7.2.3 Chosen Parameters

One area that has become apparent to the author of this thesis over the course of this project is that whereas the UK private housing industry works to the statutory regulations and the regulations of whichever of the warranty provider that the development is registered with, they do not actively share this information with their customers. The author of this thesis has found that customers of the UK private housing industry are on the whole ignorant of the regulations to which new homes are built. In order to progress with the first phase it was decided to use the Building Regulations and the NHBC regulations as a set of criteria. The NHBC Standards were chosen as the NHBC provide warranty cover to the largest proportion of new house built in the UK.

The examples of relevant literature considered previously indicated that there appeared to be a question mark as to whether the industry did actually meet the basic requirements of the Building Regulations and NHBC Standards. The reasons for this shortfall may vary from builder to builder; site to site and region to region and were thus too variable to consider in this research. The controversy does, however, relate to the attainment of standards rather than their definition and interpretation.

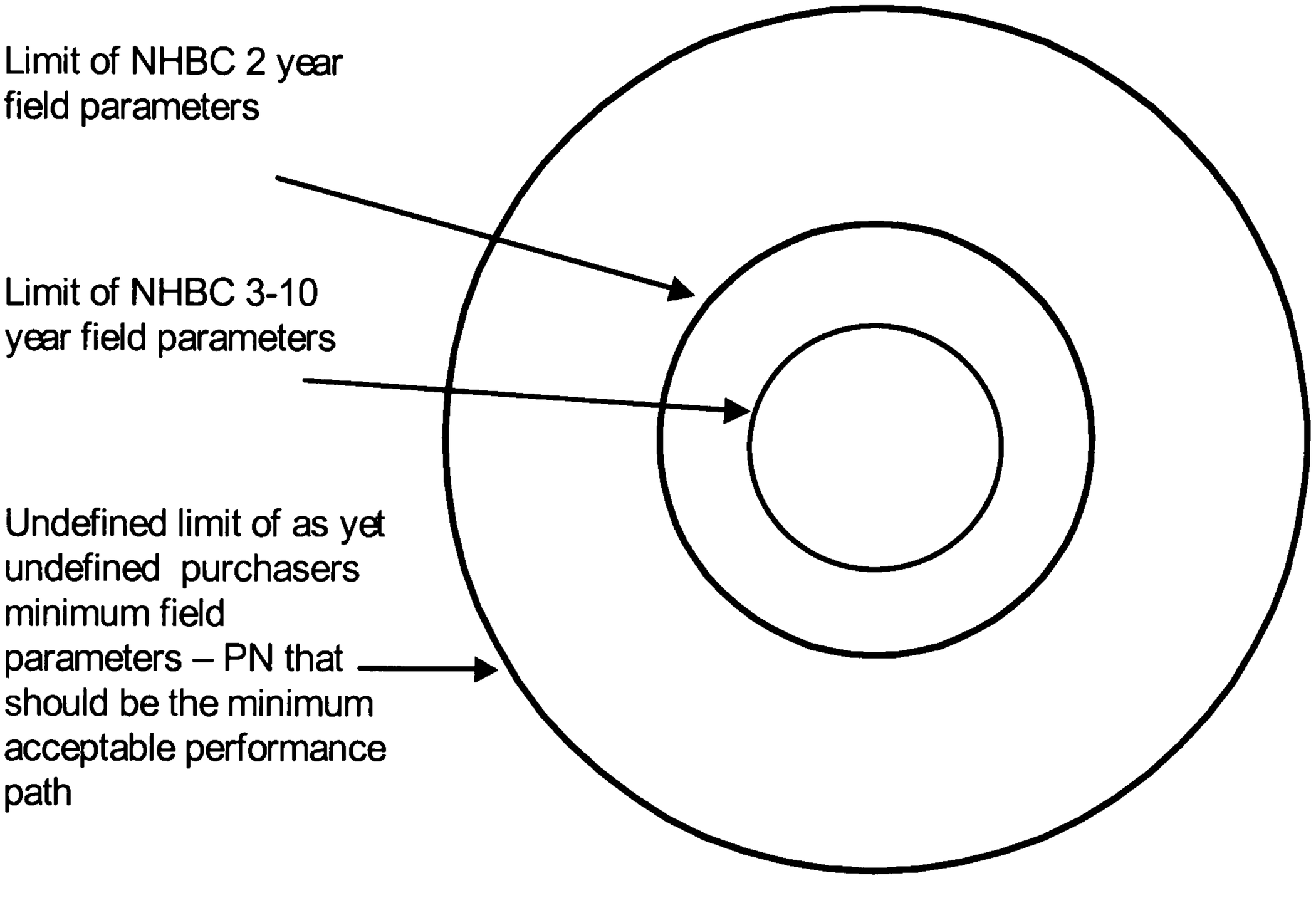
A question that also seemed to be relevant was that in the best-case scenario, where the builder does achieve the warranty and other standards, are the purchasers satisfied with their houses? Whilst this also had many variables, they all appear to be capable of being tabulated and compared with such as the NHBC standards. This seemed to be a natural starting point in defining quality standards, which at the time did not seem to have been attempted. This exercise would facilitate a more meaningful use of standards and would make a conceptual step change in defining quality parameters for new housing and would be the essence of the research project. This would have represented an academic conceptual and practical contribution to knowledge, considering a primary hypothesis that the public perception is that the warranty given on new houses should cover more than it actually does. This would then have been a basis for defining and directing the data collection process.

At the time it was felt necessary to clarify the distinction between the qualitative and quantitative issues in this project. The actual parameters that would be needed to define 'quality' would be based on a consensus of purchaser's thoughts and perceptions of what they consider represents quality in new homes and would be thus a qualitative issue. The measurement of whether or not the customer felt that these parameters had been delivered by their builder would be the quantitative aspect of the research.

7.2.4 Initial Conceptual Model for Testing/Development

An initial hypothesis was that there was an as yet undefined, but larger set of parameters than the warranty provider or statutory parameters that occupiers believed should represent a minimum standard in terms of the quality that they could reasonably expect in a new house, these are to be called, Purchasers Normal Parameters [PN]. These would then relate to and go beyond the NHBC standards, which as a norm could be considered to include the Building Regulations as well as more prescriptive

regulations in many areas. Furthermore, these PN parameters represent the central core aspect of the TQM principles and will in fact be the *customer's requirements*, which are to date the missing link in conceptual model B.



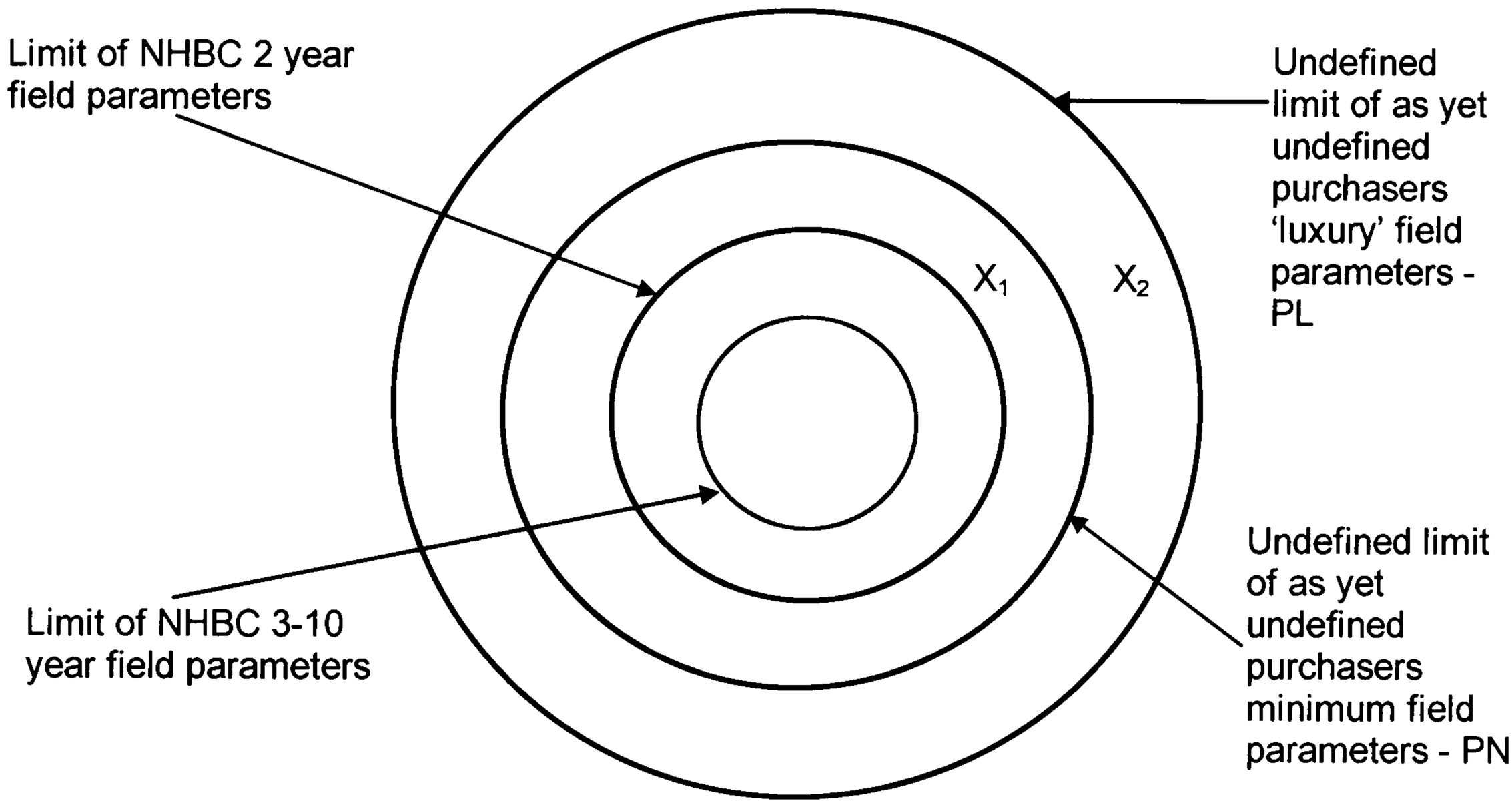
Conceptual Model B1

This model shows the relationship of this new PN field to the actual NHBC warranty and minimum acceptable performance path fields in conceptual model B. The two year field represents the scope of the 10 year NHBC warranty for the first years, during this time the builder is responsible for all defects, but should the builder refuse to do work or goes into liquidation the NHBC will cover the cost of this work. This covers all non-conformance to the NHBC and Building Regulations and areas where finishes have not achieved the standard that could be reasonably expected from a trained craftsmen or where materials have failed in use. The three to ten year warranty covers only major structural problems, such as foundation failure. This model shows that the PN field is expected to be greater than the 1-2-year NHBC warranty field.

An example of an item that would be classified as a PN standard would be X_1 in conceptual model B1a, a standard that requires the builder to provide a minimum of

150-300 mm of vegetable soil for all garden areas. The current guidelines for builders say that *'vegetable soil disturbed should be re-instated or replaced. It is not necessary to provide further vegetable soil.'* (NHBC Standards chapter 9.2 - S8)

An initial sub-hypothesis was that there is a still larger set of parameters that could be seen to represent 'high' or 'luxury' quality. These luxury parameters were assumed to be over and above those that the purchasers would expect as a basic standard in most developments, but for which they may be prepared to pay extra.



Conceptual Model B1a

This model shows the relationship of this new PL field to the previous fields, an example of which would be X_2 a standard that provides extended cover and servicing for the central heating system of the house.

Some assumptions were to be made in defining these parameters, in order to be able to plot them in the model. The first assumption was that the NHBC standards covered all the legal minimum standards that applied to all housing. Secondly, that the NHBC first 2-year warranty parameters included all the 3-10 year parameters and the minimum legal standards. Thirdly, that the 'as yet undefined minimum parameters' [PN] included all of the NHBC first 2 year and 3-10 year and legal minimum

parameters. Finally, that the 'purchasers luxury parameters' [PL] included all of the previous ones.

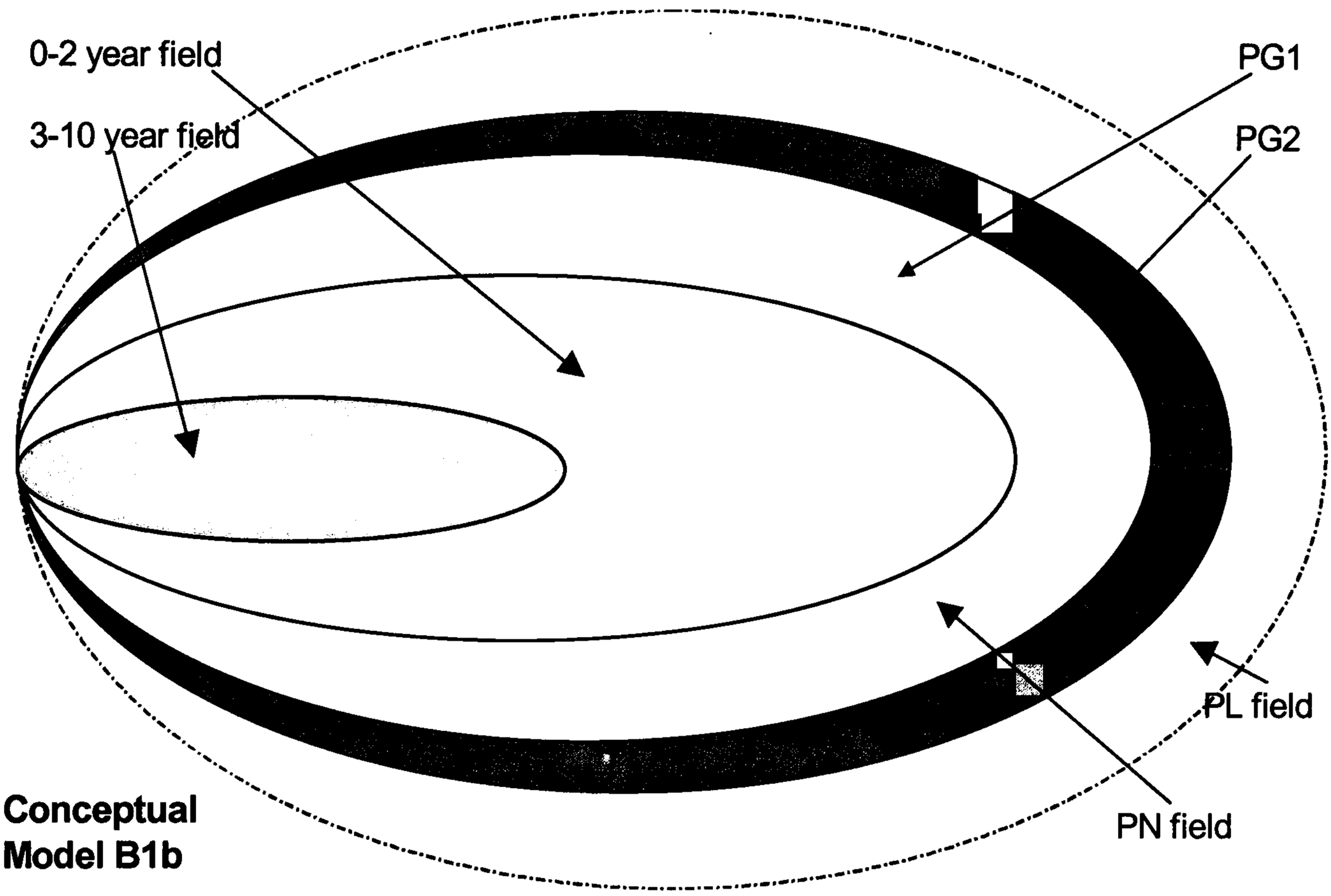
It was thought that it could be assumed that the qualitative boundaries to the 3-10 year parameter field could be described as hard boundaries; they were fully described in the NHBC literature. Similarly the boundaries to the first 2-year parameter field could also be described as a 'hard' boundary. The quantitative boundary of these fields was not so clear and 'hard' and often the subject of dispute between purchasers and builders/NHBC, and where no agreement was possible these issues were decided by the Insurance Ombudsman. The legal minimum standard for habitation must by its nature have a quantitative 'hard' boundary, i.e. the parameters for assessment were capable of being categorised, even if there were scope for argument over their qualitative interpretation.

7.2.5 Perception Gaps

It is suggested that there is a 'perception gap', between the 'hard' boundary of what the current NHBC warranty actually covers and what the purchasers think the NHBC warrant actually covers. It is this perception gap that appears to be at the centre of most of the dissatisfaction and disputes that arise between the NHBC and new home purchasers. There is also a perception gap between the actual 'hard' boundary of the upper limit of the current NHBC warranty fields and the upper limit of the PN field. This perception gap PG1 is the one that this investigation attempts to fill. Defining this perception gap would also provide the answer for the second specific outcome: - establishing the basis for a set of customer derived criteria for the assessment of the quality of the completed house.

It is further suggested that there may be a second 'perception gap' PG2 at the interface between what the purchasers would have liked to consider to be normal and

purchaser's luxury parameters, it is thought that this would prove to be a 'soft' boundary between the two fields.



Conceptual Model B1b

This would indicate that there is a degree of variability in the parameters in this area; one purchaser may consider an item falls into the PN field, whilst another will consider that it should fall into the PL field. This model uses ellipses rather than circles to denote the fact that as the observer moves farther away from agreed minimums the scope for disagreement and thus variability of parameters increases.

The upper limit of the PL field is shown as a dotted line as it is thought that it will be very difficult to rigidly define this limit, providing a purchaser is both able and prepared to pay for the work almost anything is possible and thus the field infinite. It was hoped that the research would find clusters of parameters that would occur in each of these PG areas, and thus help to define them.

7.2.6 Establishing Customer-Based Criteria

The project was to involve the collection of quality/opinion data from the house buying public on what they considered to be important and thus establish the PN and PL

parameters. As well as being able to put forward their own PN and PL parameters, they would also be asked to rate previously established parameters in terms of importance. A preliminary formative questionnaire survey was used to try to elicit opinion and some of the findings used to put together a set of initial parameters for discussion purposes. The full range of 'ranked' parameters would it was hoped, emerge after further large-scale questionnaire work. The results could then be tabulated as shown for example in table 1.

PARAMETERS	Judicial minimum	NHBC 3-10 year	NHBC 2 year	PN	PL
Provision of flush toilet	x	x	x	x	x
Provision of running water	x	x	x	x	x
Provision of drainage system	x	x	x	x	x
Walls to meet thermal regs	x	x	x	x	x
Settlement of foundations		x	x	x	x
Dry rot in roof structure		x	x	x	x
Distortion in floor joists		x	x	x	x
Min. no. of electric sockets			x	x	x
5 lever locks to ext. doors			x	x	x
Kit. units securely fixed			x	x	x
Minimum stds. on fixtures				x	x
Guarantee on ext. woodwork				x	x
Provision of garage				x	x
Fencing to all sides of gdns.				x	x
Landscaped gardens					x
Service on heating systems					x

Table 1.

From these tabulated results it would have been possible to plot the hard boundary of the 2-year parameters, the hard boundary of the 3-10 year boundary and the lower boundary of the PN field. The author of this thesis would then plot the rest of the non-controversial PN parameters, establishing the bulk of this field. The boundary between the PN field and the PL field as previously stated would be a 'soft' boundary. Some purchasers would consider things to be 'luxury' whilst others would consider them to be 'normal' and from this data it should be possible to plot this perception gap PG2. The rest of the PL field would be dependent on the range of responses from the surveys, but a large part of it should be definable. Any future changes by the warranty providers to the range of cover during this project could also have been plotted within the model.

7.2.7 Testing the Initial Hypothesis

It was hoped that the research would find that there was a group of parameters that were PN, but outside the NHBC warranty, corresponding with the first perception gap PG1. This would correspond with the zone that produces the most dissatisfaction with current standards and would establish the customer's requirements, the element missing from model B. Defining this zone would be a contribution to knowledge and may have the potential to reduce disputes and litigation between customers and builders/warranty providers. Further outcomes would be to define the questionable limit of normal quality, the PN/PL boundary. It was also hoped that the research may be able to define some of the PL parameters, and define some of the second perception gap PG2, but this would be of secondary importance.

7.3 Formative Survey – Phase 1

This first phase of the investigation was designed to try to provide in part along with the large-scale survey, an outcome for the first specific outcome; - assessing the level of quality achieved by the UK house building industry from the point of view of the customer. A customer questionnaire was considered to be the most practical methodology to use to accomplish this outcome. As the author of this thesis had several years experience in the private house building sector, he considered that he knew what the most important elements of a new house were and constructed the questions on the formative questionnaire based on his industry knowledge.

The responses asked for the respondent to make a choice from one of five responses and circle the most appropriate response to each question. The responses ranged from *excellent; good; average; poor to very poor.* Respondents were asked to give reasons for any response that was less than average in a box on the back of the questionnaire. They were also invited to make any other comments they felt

appropriate whilst keeping the questionnaire anonymous. The author of this thesis felt that if anonymity were maintained for the respondents then they may be more prepared to answer the questions than if they could be identified.

The original design for the data collection included a preliminary questionnaire survey that was undertaken in 1996 as part of an MPhil study and covered homes up to 10 years in age. The survey consisted of a questionnaire that firstly asked the purchaser to assess the overall quality of the house, which would be a subjective assessment on their part. The questionnaire then moved on to look at nine elements of the construction process that are technical elements and then rate these nine elements in terms of their satisfaction with regard to their home. They were then asked to consider the service provided by the builder, specifically the sales, build and after care service provided by the builder. By firstly asking a question about the general quality of the new home, the author of this thesis hoped that the respondents would not be influenced in their responses to the list of elements that the author of this thesis considered to be important.

7.3.1. The Actual Data Collection

The process was a rolling one, in which the researcher distributed 10 - 15 survey forms in a night, explaining to the owner the purpose of the survey and then collecting the completed forms two weeks later. In this manner the author of this thesis planned to ensure that the response rate would be high, questionnaires would only be left with people that were prepared to fill them in. With this process the author of this thesis would also be able to look at the completed questionnaires as they were collected and do some preliminary analysis of the responses as the survey progressed. (The pro-forma used for this initial survey can be found in appendix A.)

In practise the survey suffered from some common problems identified by Oppenheim: *"Research workers tend to become too intellectual, and develop the language of specialists: it is generally much better if attitude questions and statements can be put in the respondent's own everyday language."* Oppenheim (1992) In an attempt to ensure that the questions were not in any way 'leading', the author of this thesis used simple technical terms with precise meanings within the industry. Unfortunately the same terms were not at all precise in meaning to the layman and many of the questions were capable of being answered by responses that did not demonstrate either a positive or negative attitude to the quality of the element of the house. On initial analysis it became clear that when just over 100 questionnaires had been distributed and collected, the replies received were not going to generate the data required. The responses to the questions on the questionnaire seemed to be at variance with the doorstep discussions held with the respondents, and also with the comments made in a box provided for the respondent to voice their opinion about any aspect of their new home and their buying experience. Thus, the survey generated interesting information about new private house buyers and their experiences, but not the type of data that would be helpful in defining the PN field.

In hindsight the author of this thesis feels that he too had considered quality in the way the industry was measuring q uality, in negative terms and in the same direction as model B, defects or lack of defects. This initial survey did not seek to find out what the customer wanted, only what the customer thought about what they had already got. After discussions with his supervisor, more research into questionnaire design and more research into how quality was defined and measured in other industries, the author of this thesis decided to curtail this survey and use the results and experience gained to design a data collection tool that would be more likely to produce data that would help to define the PN parameters. It is interesting that when the Housing Forum and MORI conducted their first survey in 2000, the responses produced from this small-scale survey conducted in 1996 produced similar results. This preliminary survey

had a positive effect on the rest of the project in that it highlighted at an early stage how a set of questions could be unsuitable by virtue of the fact that they elicit responses open to more than one interpretation and not in fact answer the question asked. The results though not as first anticipated were still of value and thus analysed qualitatively by identifying trends and key words and quantitatively using SPSS and are discussed later in the document.

The next phase was to be a large-scale questionnaire survey based on the information gained from the initial survey. At this time it was hoped that assistance could be gained from one of the major house building companies who at the time seemed to be in the process of instigating a new quality system. Unfortunately the major housebuilder decided that they did not wish to participate in this research and thus they would not assist in the survey. The curtailment of the initial survey meant that the next phase of the data collection, the large-scale survey was postponed for a few months, whilst a new phase 2 devised taking into account Oppenheim's advice. It was decided to conduct some taped semi structured interviews with home owners, the transcripts from these interviews would produce a terminology that could be easily understood without ambiguity by the subjects of the large scale survey, so more research was conducted into questionnaire design and terminology.

7.3.2 Attitude Surveys

The work involved in the collection of data for this research project is essentially an "attitude survey". The principal issues are the establishment of *customer derived quality criteria* and their boundaries. In order to do this successfully we must firstly be able to identify the *customer derived quality criteria* and secondly be able to rank them in order of customer priority so as to plot their position within an overall quality model.

Oppenheim (1992) stresses the importance of constructing questions using language that the people that you are trying to elicit information from, use and understand. He suggests that any questions used in the questionnaires should be derived from interviews and using phrases taken directly from these interview transcripts:

> *"the tapes can be an invaluable source of question wordings and attitude statements. Research workers tend to become too intellectual, and develop the language of specialists: it is generally much better if attitude questions and statements can be put in the respondents' own every-day language."* Oppenheim (1992)

This in no way denigrates the intelligence of the purchasers questioned; the English language is extremely ambiguous in normal usage, without adding the extra problems of construction terms and the subjective nature of quality criteria. It must be recognised that any person that has an extensive background in a particular technical field, will over that period of time have assimilated technical terms and phrases into their ordinary every day language usage. These terms will have quite specific meanings to that person, but almost certainly will not have the same meaning to the layperson, the customer. This is hardly surprising, when one discovers that even the professionals have different words for the same process or component depending which area of the country that they come from.

Thus in order for the criteria to be of any real meaning, they must reflect the actual views of the customer and thus must be couched in terms that the customer is comfortable with. This research will be able to identify the important aspects and more importantly to be able give them a customer-weighted value. The industry will then have a set of criteria that their customer's can relate to, and a set of criteria that the industry can work to and be judged against by the customer. Which aspects of house construction are important to them, which ones do they feel should not be of importance to them. This last comment may seem strange, but as one interviewee

said some areas have been inspected by industry professionals and have the benefit of a warranty that ensures that they should not be a problem.

7.4 Phase 2 – Taped Semi Structured Interviews

As previously stated, it was decided that the next phase of the data collection would consist of a series of taped semi-structured interviews. Research showed, (Oppenheim 1992) that if conducted carefully, these interviews would elicit thoughts and attitudes from the respondents on what was important to them and what they expect to be of 'warranted' quality in new homes and thus form the basis for further defining the PN parameters. A small group of homeowners ranging from 'just moved in' to having lived in their property for three years were used for the interviews. The questions that would form the basis for discussion in these interviews were devised using a set of parameters derived from the NHBC regulations and the trends and issues of concern that had been identified in the preliminary questionnaire survey. The use of the 'open' questions or phrases would allow the interviewer the opportunity to probe the respondent's thoughts more deeply; it would also give them scope for freedom and spontaneity in the responses. It was thus hoped that the thoughts and attitudes of the interviewer would not transmitted to the respondent, influencing their responses in any way.

7.4.1 Visual Aids

In order that the data collected from these interviews would be only that of the respondents, it was decided to use some visual aids for certain questions. This enabled the author of this thesis to pose questions about the importance of items and acceptability of visual finishes in as neutral manner as possible, the only influence being the actual items on cards and photos shown to the respondents. One question asked the respondents to identify which in a group of eleven defects on individual cards

were defects that were covered in their NHBC warranty, this was asked to determine the extent of their knowledge of their warranty. This was considered to be an important question as it related directly to the initial hypothesis, defining the NHBC warranty field 'hard' boundary. Another set of cards asked the respondents to rank the features/elements on the cards in their order of importance when considering the purchase of their new house. Again an important set of responses, as they would form the basis of the final list of important features for respondents on the large-scale questionnaire to rank. This in turn would provide the data for the second specific outcome of establishing the basis for a set of customer derived criteria for the assessment of the quality of the completed house.

The final visual aid was a set of thirteen pictures showing various examples of brickwork on new houses, some of which contained technical defects, visual defects and some neither. The respondents were asked to look at each picture and indicate whether they found the brickwork acceptable or not, whether it would stop them buying the house. This would help to indicate whether the house buying public felt that visual defects had more of an effect on their views on acceptability than technical defects. The rest of the questions were designed to establish their expertise in the field of new homes by finding out how many new homes they had owned; to try to determine their expectations in terms of performance of both house and housebuilder and perhaps more importantly to be a vehicle that would allow them to identify and discuss areas that they felt to be important. One question asked them to compare the build quality of their house to their motorcar, to see if the house buying public did think that there were any comparisons.

The interviews were conducted in summer 1999, where possible both the male and female partner were invited to participate in the discussions and answer the questions so that the responses were not skewed by gender issues. The interview pro-forma was not given to the respondents, again to ensure that there was no undue influence from

the researcher on their responses. The author of this thesis made some notes on the form and taped the whole interview. The tapes were subsequently transcribed for analysis purposes, and twenty statements based on the outcomes of the interviews were devised using the words and phrases of the interviewees wherever possible.

The data emerging from this group of interviews would be pivotal in the design and construction of the large-scale questionnaire. This data will also accord some legitimacy to the parameters used in the large-scale questionnaire and thus the responses that will identify the PN issues and thus the PN field. (The interview pro-forma and visual aids can be found in appendix B1 and B2)

7.5 Phase 3a Pilot for the Large-Scale Survey

The survey instrument was designed to be as easy for the respondents to complete as possible, whilst still producing the data required that would define the PN field. The twenty statements derived from the interviews were taken and first placed in what was considered to be a logical order. This order was decided upon as it mirrored the house buying and moving in process, with two more general statements at the beginning that reflected a more general attitude towards the appearance of the house and its integrity.

7.5.1 The Design of the Questionnaire

The format of the questionnaire took a great deal of time to design, the author of this thesis wanted to be able to distribute the questionnaires by posting them through letter boxes, enclosing a prepaid envelope for return and have no other contact with the respondents. This meant that the questionnaire must be able to be easily understood and completed by any homeowner without further or complicated instructions. The questionnaire also needed to be able to provide the information that would provide the raw data from which customer-based performance/quality criteria could be established.

Due the fact that it was a customer satisfaction/attitude survey, the data needed to be able to convey both the importance of each statement to the respondent and the level to which they felt that the builder had actually met their expectations in their new house.

The author of this thesis considered that twenty statements was the maximum that the respondents could reasonably be expected to answer, and it also meant that the questionnaire could be produced on one sheet and would thus have the appearance of something that could be completed quickly. This is why it was decided to produce the questionnaire with two responses to each statement. The respondent whilst considering the statement could give their response to both the importance of and level to which their expectations had been met in their current house whilst the statement was fresh in their mind. The instructions on the front of the questionnaire were made as simple as possible, and the scoring system explained in some detail.

The scoring system used a form of Likert scaling, but in this case after the problems encountered in the first survey it was decided to eliminate the median option and only use four options. It was hoped that this would ensure that the respondents did actually make a choice when replying to a statement; enabling the results to have either a positive or negative outcome for each statement. These responses were designed to correlate with the data that the survey was trying to establish and collect.

Two different formats of questionnaire were produced, one on A4 double sided and one A5 size with four sides folded, both questionnaires were then sent out to the semi-structured interviewees for them to answer and pass comment on the statements and the format. The responses on the questionnaires were positive, they indicated that the final list of statements as presented covered the aspects of the home buying process that the respondents considered important, they were comprehensible and the layout of the questionnaire was easy to follow, they also indicated that the A5 size questionnaire

was the preferred format. Thus, the final format of the large-scale survey was now complete and had been piloted on the interviewees that had been the source of the statements and was now ready for distribution. (These two formats can be found in appendix C1 and C2)

7.6 Phase 3b the Large Scale Survey

This phase of the project involved distributing questionnaires to a sample of 1000 homeowners. Respondents were asked to consider the customer derived criteria listed in the questionnaire and using the ranking system contained in the questionnaire instructions, to make a decision on each statement proposed on the questionnaire. They were asked to make decisions firstly regarding the importance of the statement to themselves and secondly whether these expectations had actually been delivered by the builder in their new home. The questionnaires were distributed during the summer of 2000, over a four-week period covering a geographical area from Macclesfield in the south to Preston in the north, Caddishead and Westhoughton in the west to Hyde in the east. Each questionnaire pack contained an introduction letter, a copy of the A5 survey pro-forma and a prepaid envelope for the return of the questionnaire. The author of this thesis tried to cover a wide range of builders and types of development from starter homes to large detached properties in order to ensure a similarly wide range of responses. A total of 285 completed questionnaires were returned, in one respect a little disappointing, but at 28.5% it is within the expected norm for a postal questionnaire response rate. The responses were later analysed using SPSS.

One of the main problems of an independent research project such is this are the scale of participation in the survey due to lack of resources. The survey can only be local in nature and thus the question of regional variations over the country as a whole may have an effect on the accuracy of the results if extrapolated to be representative as nationwide. Just how representative of client feelings and requirements are the

findings derived from this questionnaire? Can they be applied to the country as a whole and more importantly in this case, once these criteria are established will the housebuilding industry be persuaded to take notice of the results?

7.7 Case Studies

The final aspect of the research design was the three case studies. These were felt to be important in as much as they provided the industry position. The questionnaires would demonstrate the customer's opinion on the achievement of quality in new private houses; the first case study would look at the quality system of a large national house builder that was responsible for the level of quality achieved. This would also give an insight into the quality culture of the company, was it top down; how consistently was it applied and how much was customer feedback used in modifying the system?

The author of this thesis was fortunate at the time to have access to all the documentation of one of the largest UK house builder's quality management systems. He was also able to discuss the system and its implementation with one of the company's site mangers. It was felt that this case study would provide some if not all of the reasons for the level of customer satisfaction indicated by the questionnaire. It would also provide the basis for the formulation of a conceptual model based on the system as used.

The second case study looking at the Mace system was undertaken as this would demonstrate what could be achieved if the quality culture existed within a company. It would also demonstrate the advantages of close client involvement, in this case partnering, that could be applied to UK private housing. The author of this research was fortunate in that the person at Mace who was responsible for the feedback system and assessing customer satisfaction was prepared to be interviewed and give access to their system and some results. It would also be useful to compare and contrast the

two different systems based on the outcome of the questionnaires. This again would allow the formulation of a conceptual model based on the workings of the system.

The opportunity to conduct the third case study came about after the questionnaire had been undertaken. The author of this thesis had seen an article in Building Homes by Chapman Pincher telling of a company in Indianapolis Estridge Homes who claimed 97% customer satisfaction. The author of this thesis viewed their web site and saw the claims and then contacted the company to see whether they would share their quality management documentation with him. The company agreed and sent a large quantity of paperwork including videos of how their system worked. It was felt that if this system worked as claimed it would be transferable to the UK private house building industry.

The author of this thesis again made contact to see whether the company would be prepared to allow access to their company and its staff if he was able to make a visit. Estridge agreed to the visit and the author of this thesis was fortunate in that the RICS Foundation agreed to make funds available to cover the cost of the visit. This case study would show that it was possible to take the TQM concept and apply it to private housing albeit in a modified form and produce the levels of customer satisfaction achieved by Mace in the private house building sector with multiple clients. It would also provide the information for the formulation of a further conceptual model based on the Estridge system.

7.8 Summary

This research has evolved over a period of time and the result of this evolution has led to the current research format. This final format would enable the large scale questionnaire survey to establish the veracity of the twenty statements produced from the interviews. Did these twenty statements accurately reflect what most customers think are important aspects of the new private housebuilding process? If so the

research would have addressed the second specific outcome and defined the PN criteria. It will also address the first specific outcome by providing an assessment of customer satisfaction based of the actual quality achieved in new private housing.

The case studies and the literature would address the third specific outcome and enable the formulation of conceptual models that demonstrate the systems currently in use. The literature and the final case study would address specific outcome four and provide the basis for the new quality theory. The three hypotheses would also be addressed by this methodology; enabling each hypothesis to verified or not in the final discussion.

The next chapter will consider the analysis of the data and discuss the findings of the initial survey, the semi-structured interviews and the large-scale survey.

CHAPTER 8 DATA ANALYSIS

8.1 Introduction

This chapter of the thesis will detail the analysis of the formative survey, the semi-structured interviews and the large-scale survey. The surveys have been analysed using SPSS version 7.5, statistical analysis software in order to produce statistics on customer perceptions of quality as well as trends in the manner in which customers perceive the whole concept of quality. The interviews have been analysed by identifying key words, phrases and building up sets of similar concepts and also identifying trends in the responses of the interviewees. The process has been an evolutionary one, with initial analysis of each stage of the data collection guiding and formulating the design of the next stage. The main part of the evolution has been the change in focus of the surveys and interviews from a concentration on the 'hard' issues, the technical aspects of housebuilding, to the *'soft' issues'* as identified by Kristensen et al. (2000) as being the main factors that influence customer's overall perception of quality.

A key aspect of this research was to establish whether or not measurable direct links exist between customer satisfaction with technical elements (*'hard issues'*) and the service provided by the builder (*'soft issues'*) with the overall customer satisfaction with the quality of their new home. If there are direct and measurable links between the *'soft issues'* and *'hard issues'*, which issues if any have the greater affect on the customer's overall perception of quality of their new home.

8.2 The Formative Survey

The formative survey produced statistics that indicated that 72.6% of those returning the survey were satisfied, moderately happy or completely happy with their new house.

This figure is lower than the 2000 Housing Forum/Mori survey figure of 87% but was carried out four years previously and on a smaller more localised scale that could allow for the discrepancy with the HF/Mori figures. The formative survey results also showed that 63.7% of respondents would buy another house from their builder, the HF/Mori poll suggested a figure of 35% in their 2000 survey would be repeat buyers, again a discrepancy but on a much larger scale. The formative survey results produced a figure of 52.2% of those responding, thought that the after sales service was average to excellent and HF/Mori suggested 59% as the figure they found in 2000, again a discrepancy but on a much smaller scale in this section.

The rest of the survey data was analysed (see appendix D) to see whether any significant correlations were indicated between any of the nine specific technical elements identified by the author of this thesis and the overall quality rating given by the respondents. On analysis the results did not identify any one specific element that had a major effect on the overall customer satisfaction rating of the quality in their new home, although if the figures are looked at in isolation it would appear that there were specific causes for dissatisfaction. For example, using the cross-tabulations for the internal finishes element against overall quality initially did appear to show that where customer responses gave a *very poor* rating for internal finishes, this produced a correspondingly low *very unhappy* rating on the overall quality response. Where the customer response was *poor*, this produced a *slightly unhappy* overall quality rating. This is potentially a solid link between customer dissatisfaction with a technical element and their overall satisfaction with their new house.

8.2.1 Low scoring Elements

However, if we look in more detail at the low scoring technical elements we see that 31% of respondents were thought that the internal finishes in their new home were either *poor* or *very poor*; 7.1% thought that the brickwork was either *poor* or *very poor*;

5.3% thought that the roofing was either *poor* or *very poor*; 24.8% thought that the decoration was either *poor* or *very poor*; 5.3% thought that the electrical system was either *poor* or *very poor*; 34.5% thought that the windows and doors were either *poor* or *very poor*; 46% thought that the paths, drives and fences were either *poor* or *very poor*; 15.9% thought that the heating and ventilation was either *poor* of *very poor*; and finally 11.5% thought that the internal fixtures and fittings were either *poor* of *very poor*. Clearly within this range of low scores there are some large numbers of customers who thought that some of the technical elements in their new house were significantly below their standards as to rate them as *poor* or *very poor*. If we look closely at the four elements that produced the highest dissatisfaction ratings we see that in the case of paths, drives and fences, out of the 46% who recorded either *poor* or *very poor* against this item only 18.6% actually recorded an overall dissatisfaction rating of *slightly* or *very unhappy*. In the case of windows and doors, out of 34.5% who recorded either *poor* or *very poor* only 20.4% actually recorded an overall dissatisfaction rating of *slightly* or *very unhappy*. Of the 31% who recorded either *poor* or *very poor* against internal finishes only 19% actually recorded an overall dissatisfaction rating of *slightly* or *very unhappy*. In the case of decoration, of the 24.8% who recorded either *poor* or *very poor* only 19% actually recorded an overall dissatisfaction rating of slightly or very unhappy. These statistics suggest that whilst these four elements are of some significance when customers are assessing overall quality ratings they are not exclusive and the initial high percentages of dissatisfaction on elements do not give the whole picture. In the case of paths, drives and fences more than half (60%) of those who rated this element as *poor* or *very poor* were either *satisfied* or *moderately happy* with the quality of their new home. In the case of internal finishes where 31% recorded either *poor* or *very poor*, 52% of these people were still *satisfied* or *moderately happy* with the quality of their new home. Clearly the technical elements on their own do not appear to formulate the customer's satisfaction rating on their new home.

8.2.2 Service Elements

When looking at the service elements that were contained in this survey we see that there were three sections on the survey that related to the service provided by the builder, the three areas being sales staff, site staff and after sales service. The interaction with sales staff would be the customer's first point of contact with the company and often a fairly long association. The question on sales staff discounted eight replies a total of 7%, who had either bought through an estate agent or from the previous owner. A total of 9.8% had recorded a rating of *poor* or *very poor* in regard to the treatment received from the sales staff. Of these people that recorded a low rating for sales, 5.4% were still either *satisfied* or *moderately happy* with their new home, this element is therefore not an obvious individual significant factor in overall satisfaction with quality in new homes. It is perhaps interesting to note that some of these low ratings attracted comments such as "untruthful" and "poor after signing contract" in relation to the treatment by sales staff. Site staff consisted of those who ran the site in any form of management role, 21% of respondents rated the treatment received from site staff as being *poor* or *very poor*, and yet 15% were either *satisfied* or *moderately happy* with the overall quality of their new home. It is interesting to note that no one who was unhappy with the treatment from site staff and rated them either *poor* or *very poor* was actually *very unhappy* with the overall quality of their new home. Again not an obvious individual significant factor in determining the overall satisfaction with their new home. The final service item was the after sales service provided by the builder, in this case eight responses 7.1% were discounted, seven as not applicable as bought out of the builder maintenance period and one who said that it was too soon to judge. A total of 40.7% rated after sales service as *poor* or *very poor,* and yet 28.3% were *completely happy, moderately happy* or *satisfied* with the overall quality of their new home. Again not an obvious individual significant factor in determining the overall satisfaction with their new home. It would appear that according to this formative survey, the service issues on their own do not give a full picture of the customer's satisfaction or dissatisfaction with their new home either.

8.2.3 Home Buying Experience

If we consider experience in the buying of new homes, and check to see if this is a factor, are experienced new homeowners more difficult to please? From the statistics produced in this formative survey it would appear that there is no evidence to support the theory that experienced homeowners are more difficult to please. In the case of multiple previous owners, i.e. 2 or over previous houses, the only area in which they were at all unhappy was in the after sales service offered by their builder. In this case 50% of these customers were unhappy with after sales service rating it either *poor* or *very poor.* In fact from the responses it showed that for new owners 64%, one previous new house owners 63% and two previous new houses owners 65% would buy again from their builder, and three or more previous new house owners 80% would buy again from their builder. The figures for the first new house buyers are very similar to those recorded by the group who were on their second new house when it came to both the eight technical elements and the three service aspects of the builder. The second new house buyers perhaps recorded more satisfied scores than the first new homebuyers but the margin was narrow in both sections.

8.2.4 Outcomes from Formative Survey

This formative survey was not able to provide answers as to why the experienced buyer seemed to be more satisfied with their new house than the first time buyer; perhaps it is due to the experience they have amassed during the course of their first purchase. It could then be hypothesised that they now knew what to expect and how to control the process of new house buying and set their expectations accordingly for their second experience. The survey did however show that the reactions that the author of this thesis had to the survey from customers at the door when the survey was distributed were not confirmed in the responses. It was in fact quite surprising, the high level of overall satisfaction indicated by the survey findings. This survey was handed

only to those who showed interest and were prepared to fill in the form, discussions were held on the doorstep about the purpose and end result of the survey and the initial indications from these doorstep talks was that customers were on the whole dissatisfied with their new homes.

As a final analysis of the formative survey the author of this thesis printed out all of the results sheets and taped them together to form a large matrix table. The responses were then highlighted with different colours to give a visual representation across the whole of the survey. From this visual plan it was possible to identify easily the homeowners that were dissatisfied with their homes, and then to identify their other responses. Of the eight who were *very unhappy* with their home the only specific low scoring element that linked five of these eight homeowners was *very poor* after sales service. In 50% of the cases the low scores were constant across the majority of the elements, but in the other 50% the scores for other elements other than after sales service were relatively high.

The final analysis of this formative survey has provided as much positive data as negative data. The negative side was the large number of people that when it same to assessing their satisfaction chose the average response, which indicated neither satisfaction nor dissatisfaction and the apparent difference between the doorstep discussions and the statistics on overall satisfaction. The positive data that has emerged on analysis is that there seem to be no individual technical elements that affect the customer's overall perception of quality and there is at least one individual service element, after sales service, which may affect the customer's overall perception of quality. The reason that this was a positive outcome is that it demonstrated that the customer's satisfaction rating of their new house is not a straight forward concept, it is more likely to be a composite of many different aspects of their experience throughout the buying of their new home. It therefore needed a different approach other than just

asking questions about the level of achievement of technical and service elements in the new home buying process.

8.3 Taped Semi Structured Interviews

This decision to change the manner in which information was gathered from house buyers was at the time based on an incomplete analysis of the formative survey, the later more in depth analysis did in fact justified this decision. The taped semi structured interviews were a method of finding out what the individual customer thought were the important aspects of their new home and the new home buying process. The rational being if we knew what really mattered to the customer, then we could put together a questionnaire instrument that would be able to measure the level of achievement of the industry against these customer-derived criteria.

The interview pro-forma was based on some of the information gained from the initial analysis of the formative survey. The interviews were an attempt to discover in what way the customer's perceptions of what mattered in a new house differed from that of a construction professional. It was considered that the aspect of the research being driven by customer criteria was important and would differentiate this research from other initiatives such as the Housing Forum and MORI survey.

8.3.1 Criteria for the Analysis of Interview Transcripts

In deciding what criteria to use when analysing the transcripts of the interviews the author of this thesis considered many different sets of themes and trends to use, but found that possibly due to his technical background, the list always ended up with a technical bias. The transcripts had provided the areas that the customers considered important and these were then built into the final questionnaire, but there was pool of rich data in the transcripts that needed to be collated and analysed against some

robust and proven criteria. Using the previously discussed criteria of *hard* and *soft issues* was considered, but this tended to produce too many comments that fell into both sets of criteria. The same *hard* and *soft issue* criteria were then combined with some technical issues to further refine and define them, whilst this produced a larger set of criteria, it again resulted in some customer comments falling into too many multiple criteria sections and not helping to clarify the situation. The author of this thesis was able to use these transcripts to identify individual issues that the interviewees were concerned with. These were issues that the customers thought were important and issues that the builder did not deliver in a satisfactory way; these in turn formed the basis for the questions for the full-scale questionnaire.

Whilst it is recognised that due to the subjective nature of quality there will always be to some extent a blurring of criteria boundaries, it was decided that for the in depth analysis of these interviews something else was required. Through conversations with the author's supervisor, it was decided to delve back into the literature and find a suitable set of criteria with robust credentials. Crosby (1984) puts forward his quality vaccination serum, the *ingredients* being a set of five major criteria with sub criteria that a company needs to adopt to ensure that they are producing what their customers want and thus have a quality product.

Whilst on first inspection some of the sub criteria may seem to be inappropriate for the intended use with these interview transcripts, they are indicative of the company's attitude towards their customers and the end product that they are producing.

These *ingredients*, reproduced in tabular form over the two pages, offered a set of criteria that could be applied to these interviews.

THE CROSBY VACCINATION SERUM

INGREDIENTS

Integrity

A. *The chief executive officer is dedicated to having the customer receive what was promised, believes that the company will prosper only when al the employees feel the same way, and is determined that neither customers nor employees will be hassled.*

B. *The chief operating officer believes that managing performance is a complete function requiring that quality be "first among equals" - schedule and cost.*

C. *The senior executives who report to those in A and B, take requirements so seriously that they can't stand deviations.*

D. *The managers, who work for the senior executives, know that the future rests with their ability to get things done through people - right the first time.*

E. *The professional employees know that the accuracy and completeness of their work determines the effectiveness of the entire workforce.*

F. *The employees as a whole recognize that their individual commitment to the integrity of the requirements is what makes the company sound.*

Systems

A. *The quality management function is dedicated to measuring the conformance to requirements and reporting any differences accurately.*

B. *The quality education system (QES) ensures that all employees of the company have a common language of quality and understand their personal roles in causing quality to be routine.*

C. *The financial method of measuring noncomformance and conformance costs is used to evaluate processes.*

D. *The use of the company's services or products by customers is measured and reported in a manner that causes corrective actions to occur.*

E. *The company emphasis on defect prevention serves as a base for continual review and planning that utilizes current and past experience to keep the past from repeating itself.*

THE CROSBY VACCINATION SERUM

INGREDIENTS (CONTD)

Communications

A. *Information about the progress of quality improvement and achievement actions is continually supplied to all employees.*

B. *Recognition programmes applicable to all levels of responsibility are a part of normal operations.*

C. *Each person in the company can, with very little effort, identify error, waste, opportunity, or any other concern to top management quickly – and receive and immediate answer.*

D. *Each management status meeting begins with a factual and financial review of quality.*

Operations

A. *Suppliers are educated and supported in order to ensure that they will deliver services and products that are dependable and on time.*

B. *Procedures, products, and systems are qualified and proven prior to implementation and then continually examined and officially modified when the opportunity for improvement is seen.*

C. *Training is a routine activity for all tasks and is particularly integrated into new processes and procedures.*

Policies

A. *The policies on quality are clear and unambiguous.*

B. *The quality function reports on the same level as those functions that are being measured and has complete freedom of activity.*

C. *Advertising and all external communications must be completely in compliance with the requirements that the products and services must meet.*

Crosby (1984)

Some of the information gained from the interviews was of a specific nature that was capable of being tabulated for analysis. These tables cover demographic, reasons for choice and initial satisfaction data; component life expectancy; handover and initial period experiences; technical element importance ratings; brickwork acceptability; warranty knowledge and levels of confidence in builder and product. The analysis of these tables follows the transcript analysis, however where individual item from the table relates to the five Crosby criteria they will be discussed within the relevant section.

Using the Crosby criteria the transcripts were coded into the five main categories of criteria; *Integrity; Systems; Communications; Operations and Policies.* Initially it seemed that there was again an element of overlap between the criteria, however as the coding proceeded the subtle differences became more apparent and the last transcripts were able to be coded much more easily than the first.

8.3.1.1 Integrity

The *Integrity* criteria were considered first, this set of responses record the interviewee's thoughts and feelings about the product (their new house), the builder and his staff as well as any regulatory authorities. The overwhelming feeling that the customers had about their new house was that it may not be quite right just yet, but they all had confidence in the basic structure of the house and thus they felt that the finishings and decoration aspects could be sorted out given time. They all had the same hopes that the structure had been inspected as work progressed by some regulatory authority and that the warranty, even though many did not think it was of much value, would prove to be un-necessary. In all of the cases the major reason for choosing the particular house was its location. After that the general theme from the responses was that their new house even if it was not totally as they wanted now,

would provide the basis for a home that they would be fully satisfied with in a matter of two to three years.

The feelings about the builders varied as one might expect, there were several comments that the standard to be expected on any site was to a large extent governed by the attitude of the site manager. The standard of workmanship from tradesmen was also questioned and the fact that many of those working on housing sites were self-employed was also cited as a potential problem in terms of quality. There was a theme running through many of the responses that the site manager did not spend enough time out on site actually supervising and checking the work of the craftsmen. Some equated this to idleness and some to the fact that companies may at year-end expect too much in terms of production from one site and that as a consequence quality will suffer. Where the builder did actually take the time to check the quality of the work the purchasers did notice and this influenced their thoughts positively on the integrity of the builder. Some had strong feelings that the builder was only interested in getting their money off them and had no real interest in giving them a good service or high quality end product. One interviewee had felt so strongly about the attitude of the builder that he had reported them to Trading Standards, and several others had decided to remedy any further problems themselves rather than trying to get the builder to remedy the faults. Out of the thirteen interviews, only five customers (38%) had no confidence in their builder, the levels of confidence of the others is a variable that can be seen in the range of comments but not able to be quantified. The conformance of builders to the sub criteria as set out in the table under the general heading of *Integrity* seems to be poor, they do not appear to have embraced these criteria as genuine measures of the success of their business and as such do not meet them as a whole.

The levels of confidence in the warranty providers who have also been given the role of regulatory body conducting the inspections of new houses varied from downright corrupt to fairly dismissive. A strong theme was that the majority of interviewees

thought that it would be better if the warranty companies such as the NHBC and Zurich Municipal were directly employed by the purchaser and not by the builder. There was some doubt expressed as to the independence of the inspectors when effectively the builder paid their wages, many would like them either to be totally independent or a government body to ensure their independence and integrity. Several would like to see signed log books for each property with a discernable signature for each stage inspection, but would again boost the confidence of the customers in the structural warranty providers.

This customer comments in this section show that the Crosby sub criteria list for *Integrity* is far from being realised. Whilst the CEO may feel that he is dedicated to sub criteria A, the message has not cascaded down to all levels of the company staff. Sub criteria B is clearly not met, the financial targets still seem to be that main and overriding target in many housebuilding companies. Sub criteria C again clearly not met, with any concerns about deviations overridden by the financial implications of not achieving targets. Sub criteria D again not met and this level of management failing to meet these criteria due to lack of support form the tier of management above. Sub criteria E and F being undermined by the industries use of subcontract labour who have no loyalty to the company, work independently and thus have no sense of teamwork and respect for others work or respect for the final owners in the work they carry out.

8.3.1.2 Systems

In terms of *Systems,* designed to deliver a quality end product to their customers the builders did fair a little better. There were indications from some of the interviewees that they felt that their builder did have some form of system in place, with one purchaser commenting on the fact that it being obvious that the builder had done some initial snagging of their house before inviting them to do their snag list. The same

interviewee also commented on the fact that that it was a clean well–ordered and well-organised site, again an indication of a site and company with some form of systematic approach to building. Others were not so positive about the builder, with comments that to them it had been just as obvious as it was to the former interviewee that the builder had not done any snagging prior to the customer being asked to snag their new house. One couple noted that they were only given a short time in which to snag their new house and they found that they did not notice the majority of the snags until after they had moved in. They felt that his was due to the fact that they were inexperienced in what to expect from a new house. The levels of expectations of each of the couples interviewed seemed to vary greatly, with snag lists of seven pages through 10–12 items to none, again evidence of the purchaser's inexperience in what to look for when snagging a new house.

Interviewees were also critical of the systems the builders use to determine completion dates; some felt pressurised into legally completing on their purchase and reported that out of the thirteen legal completions only three of the houses were actually physically complete. The builder's legal systems tying customers into their completion dates were excellent. H owever, s imilarly g ood s ystems t hat e nsured t hat h ouses were a ctually physically complete and could therefore be legally completed were not considered to be in place in many of the builders concerned. Out of thirteen houses, the purchasers considered that only three were actually complete when they were asked to move in. One couple reported that the painter was still painting the back door on the day they moved in. This problem of being asked to move into incomplete houses with the promise of things being sorted out was linked by some purchasers to the builder's financial year end and pressure being put on site mangers to turn over as many new houses as possible to meet financial targets. One couple reported that the site manager had told them that he could not give them quality in the time he had to build the house.

When asked about what they thought were the key aspects in the new house building process, many responded that they would institute some form of QA system as they felt that this was lacking. Terms such as "attention to detail"; "By ensuring that somebody of sufficient degree of responsibility was carrying out regular quality checks on what is being done"; "the right people working for you, people you can trust to do the job properly" and "that all my staff to be happy with the product they are producing, that would be the company's tenet, would you be happy with one?" were all used by interviewees. Clearly the purchasers feel that at the very least, some system is either lacking or not working to its full potential in many of the national and regional housebuilding companies when it comes to delivering physically complete quality houses to their customers.

Two customers reported that company's internal systems for relating customer options and changes to the site staff were failing. The type of incident reported were where vital build information had not been passed to the site and the problem only being picked up by the purchaser on a routine visit, where floor coverings had not been ordered and thus not fitted before completion. The purchasers concerned felt that this was clearly indicative of the general lack of concern by the builders for their customer's needs in a variety of areas that their customers felt were important.

Despite comments made during the interviews, the majority of the customers when specifically asked about the builder's after sales service responded that they felt the service provided by the builder was reasonably acceptable. This did not however, signify that the number and type of element that had been left for the after sales service team to either finish or put right was acceptable. In general conversation regarding after sales service, many customers commented that whilst the site was being constructed that it was fairly easy to have problems fixed, but when the site was finished it was totally different with appointments missed or personnel being substituted at the last minute. In all some customers felt that some housebuilders took an

inordinately long time to complete/put right after legal completion what were in effect problems of their own making, and had the correct system been in place and operated would probably not have arisen in the first place.

Whilst the housebuilding companies will without doubt have some systems in place, they clearly do not have the Crosby *Systems* sub criteria as a major aspect of their systems. From the responses it is difficult to detect that the customers feel that there is any real quality management function in accordance with sub criteria A. Again in terms of sub criteria B, the responses from the interviewees would seem to suggest that this is not a common aspect, whilst some companies may well have QA systems they are not seen as part of their routine personal roles. There is little evidence of sub criteria C, D and E being used to improve the overall performance of companies, evaluation of customer feedback and the prevention of the reoccurrence of defects, as many of the criticisms of quality and standards made by the customers are of a recurring nature.

8.3.1.3 Communications

In terms of *Communications*, the general comments made were that the level of communication between the housebuilding company and their customers was on the whole poor. The main communications channel was initially through the sales person on site. This relationship was normally good initially, but some reported that once the sale was signed and sealed the sales person had little time for them. The level of communication between the site staff and the customers was not high, and in general restricted to when things had gone wrong. One or two commented on the lack of a feedback mechanism, but one did note that they were given a feedback form after completion but it contained 200 questions. The interviewee commented that they did not think that many people would take the time to complete a questionnaire of this type, and that a simple one or a visit from the builder's QA department would be better.

One piece of evidence of the type of internal company communications was the interviewee that reported that his site manager when asked by the senior management how many units he would complete by Christmas which was year end; replied three. His senior manager told him that three was no good and that the company wanted eight. The site manger retorted that if they wanted eight they would just be garbage, and his manger reportedly told him it was eight completions or his job. Other evidence consisted of sales departments not communicating the customer's option choices to the site staff. There was a general feeling of lack of communication between the builders and their customers; there certainly was not a feeling of any sort of partnership in the housebuilding process. There was certainly no evidence to support the fact that the customers thought that the Crosby criteria of *Communications* in all the sub criteria sections A - D was a normal part of any of the house building company's routines.

8.3.1.4 Operations

The next criteria to consider is *Operations,* this is taken to be the actual housebuilding process on site. This is the area that seems to cause the most amount of concern from the interviewees, with many commenting that despite promises from the site manger, the actual carrying out of works proved somewhat more difficult to achieve. The general standard of work carried out was also questioned along with the ability of modern craftsmen to carry out work to the required standards. The fact that many of the current workers on new housing sites being self employed also brought into question their commitment to the customer and the end product. The ability and desire of the site management to actually supervise these subcontractors was also questioned. There was also a feeling that once the subcontractors were paid for the work there was a distinct reluctance to come back and remedy problems. One point in case was where some tiling was not as requested, the subcontractor concerned said that in order to do what the customer wanted the whole of the bathroom suite would need to come out, the customer did not want the mess that this would cause and thus

the tiling was accepted. The customer was not really convinced that the suite needed to come out but without the support of the site manager putting pressure on the wall tiling subcontractor to do the job as required and faced with this option chose the least inconvenient way for themselves and the subcontractor got away with the tiling not being as required.

As mentioned in the previous section the interviewees felt that in many cases there was no formal QA or supervision procedure where by the site manager had checked that the standard of all the work carried out by subcontractors was to specification. In small number of cases the interviewee reported that work was in fact carried out with a minimum of fuss and done in an acceptable manner. One of the main criticisms was the lack of overall consistency in both standard and approach to all work done both prior to completion and post completion.

The type of problem reported by the interviewees was generally of a minor nature, rarely anything major of a structural nature. When specifically asked about the type of problems noted on completion the range of responses was from minor in three cases to finishes in ten cases. Most interviewees recognised that there were no major structural problems with their houses, but in any case even if there was they had the NHBC warranty to cover for such eventualities. This recurrence of minor and finishes problems indicates a lack of attention to detail on the part of both site manager and the subcontractors carrying out the work, perhaps due to lack of training or just lack of supervision.

In terms of the Crosby criteria of *Operations,* there was little evidence to support that the housebuilders do *educate* their subcontractors and suppliers to be dependable and reliable in accordance with sub criteria A. There is certainly no evidence from the reports of the interviewees that sub criteria B is being employed whereby procedures, products and systems would be continually examined or we would not see the constant

recurrence of the same type of minor/finishes problems. The subcontract aspect of new housing whereby the only person directly employed by the housing company is the site manager and possibly his assistant will ensure that sub criteria C will at best be limited to the site manager and his assistant.

8.3.1.5 Policies

The final Crosby criteria to be considered, is that of *Policies,* how do the housebuilders treat their customers as a matter of course? One interviewee reported that they had bee told by the construction director of their housebuilder that as long as the house was built to a minimum build standard his company were happy, despite claiming in all their advertising literature that they build to high standards. One interviewee complained that their builder allowed no deviations from the standard specification even though they reserved their house before the build commenced and were quite prepared to pay for their choices. The policy that caused most concern was that of the builder deciding when the property was build complete and using the contract to try to force people to complete the purchase of the property to meet their financial deadlines. The builders did seem according to the interviewees to exploit the location based monopoly that they had over their customers, one builder is even reported to have said to the customer if they wanted the plot to sign that afternoon or walk away, the builder had other customers who would buy it.

In terms of the sub criteria, it must be argued that on the evidence of these interviews, none of the builders meet sub criteria A that requires a clear and unambiguous criteria for quality. Sub criteria B requires builders to set quality on the same footing as financial targets, from the evidence of the interviews again this is not the case. As for sub criteria C that states that all advertising should be backed up by performance on site so that the finished article will be as claimed. This is again from the evidence not a key performance criterion for many of the builders whose customers were interviewed.

8.3.2 Tabulated Results

As before mentioned, some of the data from the interviews was capable of being reproduced in tabular form to aid analysis. Seven tables were produced (see appendix E, page), the first table 8.1contained some demographic details; four out of the thirteen had previously owned one new house and out of the four two thought that their new house was definitely better than their previous one. Of the other two one said slightly better the other said not as good. This could be seen to indicate that the housebuilding companies have improved the standard of their end product over the last few years, but this would be based on very inconclusive and subjective customer evidence. These figures are however in line with the HF/MORI figures of over three quarters of customers being happy with their new homes.

It can be seen in table 8.1 that the issue of the location and position of the house was a factor in over 90% of the responses to the question of what was the main attraction in buying this new house. Other factors included the layout and size of the house featured in approximately 75% of cases; price in approximately 50% of cases and the name/reputation of the builder in approximately 15% of cases. The range of occupancy of the house varied from 2 months to 48 months, giving a good range of experience of living with new houses, and only 2 owners, approximately 15% felt that their new house was not living up to their expectations well. One of these two had been in the house 3 months and the other 22 months, it would perhaps be interesting to see whether they would respond in a similar way now after living in the house for a longer period.

It is clear to see from table 8.1 that the old and somewhat tongue in cheek estate agents criteria for choosing a house of *1-Location; 2-Location and 3-Location* still holds firm. It is the area that sells the house and not necessarily the price and quality. Most

people claim to be happy with their new homes. It is interesting to note that the two respondents that said that their new house had lived up to their expectations poorly were those who had at a very early stage in the house buying process developed a fairly serious problem in their relationships with their builder. They also said later in the interview when asked if they had confidence in the end product that they did, indicating that the house was at the very least structurally sound and worth the money paid for it. They were also two out of four respondents claiming that they had no confidence in the building company, their site or after sales staff. It is interesting to note that the one respondent who claimed to have no confidence in the end product and also had no confidence in the building company, their site or after sales staff, did in fact report that the house was performing up to their expectations.

As far the '*confidence in*' and associated questions are concerned on table 8.7, 60% of the interviewees had confidence in the building company they had chosen to buy their new house from. The building company may not have been chosen due to its reputation, more due the fact that it happened to building in the location that the customer wanted to buy in, but the customer felt that they were a reputable company whose name or reputation will not diminish the resale value of their new house. As previously mentioned 95% of customers had confidence in the end product, their new house, whether this confidence is based on a belief that the house has been structurally inspected and warranted as sound or due to economic issues such as property appreciating is as yet unclear. However when specifically asked if their new house was an investment or just somewhere to live only one interviewee responded that it was just somewhere to live. All the other respondents cited home and investment in various degrees, or that the home would not loose money, but 60% were primarily home over investment.

When asked about build quality of their new homes against the build quality of their cars, 40% said it was impossible to equate the two, one interviewee citing that safety

was the key aspect with a car, another that the build quality was more hit and miss with a house. A total of 25% were of the opinion that cars were better than houses in terms of build quality, one said that you *"should expect similar build quality but that you just don't get it"*, another saying that the house *"does not come close"*. The other 35% were reasonably happy that the two were either comparable or that they were different but they were happy with both.

In terms of site staff, only 55% of interviewees had confidence in the site staff, some had personality issues, many said that they promised a lot, but did not deliver, others said that they were too busy doing other tasks to do the job of supervising the build of the houses. This lack of *hands on* supervision seems to be fairly typical of interviewee's thoughts concerning the actual site supervision staff, and with the company's use of subcontractors for most of the construction work the interviewees considered that supervision of the build process was essential.

Sales staff faired a little better in that 60% of the interviewees had confidence in and what they were told by the sales staff. There were comments such as once the sale was closed and the contract signed that they did not want to know and the customers were referred to the site staff. Some interviewees felt that the sales staff made some inaccurate claims in order to make a sale and some told outright lies or exaggerated claims about he cover of the warranty.

The after sales staff came in for some severe criticism; three interviewees had had no dealings with their company's after sale service and thus were not counted, of the rest only 40% were happy with the service given. The main problem being that appointments were missed or work not being completed within the specified time.

8.3.2.1 Handover Experiences

Table 8.3 looked at the interviewee's experiences at handover and during the initial occupation period. The amount of snagging picked up by the interviewees varied form none (where they were not given the opportunity to snag) to a list of seven pages. In all but three cases, the lists and or houses were not complete at handover/moving in day, with the owners then doing some of the jobs themselves, in one case up to 60% himself. In terms of this site provided initial after sales service the interviewees rated it as 15% good; 40% reasonably good; 5% acceptable; 5% not very good and 35% as poor. The interviewees as a whole all reported that the type of problems unfinished at handover were all cosmetic/finishes defects, the type of defect that third party inspection regimes such as the NHBC or Local Authority Building Control would probably not detect, nor in fact be looking for. These are the very areas that the interviewees highlighted; they commented that they felt that attention to detail and good supervision were all essential ingredients to be able to construct a new house of acceptable standard.

Tables 8.2, 8.4 and 8.5, all try to elicit interviewee's knowledge about technical aspects of house construction and their preconceived ideas about the life expectancy and acceptability of elements.

8.3.2.2 Life Expectancy

Table 8.2 records interviewee's thoughts on life expectancy of construction elements, all thought that such as windows should last a minimum of ten years and up to twenty-five years with fifteen years being the average provided that the manufacturer's maintenance regime was adhered to. This represents a fairly small variation in expectancies with the ten being a minimum and thus the nominal average of fifteen years being easily acceptable. Doors, internal and external had a larger range from five to six years to 30 years with eighteen years being the average provided that the manufacturer's maintenance regime was adhered to. Initial decoration varied

considerably from weeks to up to four years. With 55% of interviewees considered the initial decoration to be what the builder intended it as, a temporary finish that will make the house look good whilst the people move in and the building dries out and settles so that any expensive final decoration is not damaged by this initial drying out and settlement. This 55% reported that it should have a life expectancy of up to twelve months. It would appear that either the builder/sales staff fail to inform the customers of the temporary nature of the initial decoration or that they all forget that it is only a temporary finish, as the others expect it to last a matter of years, a high expectation for a temporary finish.

From the responses it would appear that kitchen units have now become a fashion item and as such are seen as dating and very much a personal choice item. 40% of interviewees consider that their kitchen units need only last ten years as a maximum and on average only seven years, whilst structurally and durability wise they could easily last longer than this period of time. 55% thought that they should last up to twenty years with twelve years being average, again good quality units could easily last up to twenty years but would be very unfashionable by the end of that period.

The heating systems in new houses scored a fairly low time period, this is perhaps not surprising as technology is advancing at an ever increasing rate, the building regulations are increasing the requirements for efficiency in boilers and systems and thus people are getting used to upgrading items that are based on technology. The average life expectancy was over fifteen years for the system, some interviewees split the system into boilers and radiators & pipe work, the radiators & pipe work were given a higher rating of twenty five years and the boilers ten years.

8.3.2.3 Importance of Technical Elements

Table 8.4 presents the results from the questions regarding the customer's importance ranking for various technical elements of their new house. In the majority of cases 85%, the customers did consider that the structural fabric of the house were of the highest importance as the author of this thesis had thought would be the case. Two interviewees did not rate brickwork and roofing either A or B in terms of importance, and when asked why they said that if the house was sold with a structural warranty they assumed that it had been inspected and therefore in the words of one respondent "*so it's a given that roofing and brickwork are,...they are going to be right. And if they are not I couldn't necessarily argue with them.*" Whilst not identical, they did however choose similar technical elements that they did consider to be the most important to themselves. One rated internal finishes, electrical system and heating and ventilation system as all A rated and the other rated internal finishes as A, internal doors and kitchen units as B and Paths, fences, drives and gardens as B also.

In further discussions regarding their rating choices, they both considered themselves as amateurs in the field of construction, thus as the response quoted earlier, they were unable to judge whether the structure was constructed correctly, but relied on the fact that it had been inspected to qualify for the structural warranty. When it came to finishes and other related technical elements of the house that would have an immediate impact on the quality of life in their new house they could identify these elements and expected them to be constructed to an acceptable level.

The other interviewee's ratings on the other elements were not as uniform as they had been on brickwork and roofing. The ratings as a whole were separated into four quite distinct sections, the first section and separated by seven points as previously noted were the brickwork [28] and roofing [34]. The three highest rated elements after the structural elements were heating and ventilation systems [56]; electrical systems [58], and external doors and windows [59], all were high in the interviewee's ratings but could barely be separated with only four points covering the three elements. The next

section covered the internal doors and kitchen units [72] and internal finishes [77] with six points separating these elements. The fourth section and clearly lower rated were the paths, fences, drives and gardens [93] and decoration [103]. It is however interesting to note that despite most of the interviewees rating internal decoration as a low importance element, out of the five that rated it lowest [9], two expected internal decoration to last 2-3 years, the other three expected it to last much shorter periods.

The results from the analysis of this table does demonstrate some correlation between industry and customer priorities in terms of technical elements in new houses, but as the analysis of this small sample shows there is still variation in what customers feel are the most important elements within these four sub sections. The responses of the two interviewees that were seemingly out of line on the structural elements ratings also raises a major question, are they just out of line with all the other interviewees, or are they the only ones that have considered the questions carefully and do they reflect what the other interviewees really think but feel that they should say that the structural elements are the most important? Is this just confirmation of the interviewee's quote that the average customer does not have the technical knowledge to judge technical questions on houses?

8.3.2.4 Acceptability of Brickwork

Table 8.5 records the responses to pictures of brickwork shown to the interviewees, a mixture of technically good brickwork but sometimes dirty; some poor brickwork technically but that looks quite good at first glance and some that it just bad both technically and aesthetically. Certain features such as picture 13 that showed poor practise where the finished brickwork had bad shading due to the builder not mixing bricks from six packs as recommended by the manufacturer, produced a majority response of being unacceptable [78%]. Picture 3 showed good technical brickwork, but was just dirty, this produced a similar unacceptable response [78%], picture 5

showed very good technical brickwork but with high levels of efflorescence was similarly rated as unacceptable [69%].

Many of the other pictures were rated as acceptable by the interviewees where the author of this thesis would have considered them to be unacceptable on a technical basis. This shows the lack of technical knowledge of most of the interviewees, and demonstrates that in many cases the aesthetics are what is more important to the average house purchaser. Yet even this apparent concern for aesthetics is not consistent, picture 2 was considered by a margin of nine to four as acceptable whilst picture 3 was considered unacceptable by a margin of ten to three and both were good technically but smeared with mortar and to the author of this thesis difficult to say which was the worst.

8.3.2.5 Knowledge of Warranties

Table 6 shows the results from the questions regarding the structural warranty and what it covered, in this case all the properties, as are 90% of new houses were covered by the NHBC warranty. In this question although many claimed that they had not read the document or knew much about their warranty 72% answered correctly when asked about items covered by their warranty. Some were actually surprised about being covered by certain items such as plaster cracks and creaking floors, the cover comes from the fact that the builder is under obligation to used dry timbers in the house construction to minimise shrinkage and thus plaster cracks, and creaking floors are also often caused by excessive shrinkage of joists again minimised by the use of dry timber and annular ringshank nails to secure the flooring to the joists. These two items are therefore, breaches of NHBC regulations and thus covered under the 1-2 year part of the warranty.

8.3.3 Outcomes from Semi Structured Interviews

The main outcome from the interviews was a set of customer-based criteria that could form the basis of the statements for the large-scale survey. The terminology used in the statements would be that used by the customers and thus should be comprehensible to other customers. It would fulfil Oppenheim's requirements for questions and statements used in questionnaires to be derived from interviews and use phrases taken directly form the transcripts.

Other outcomes were that although the house buying public have confidence in the structure of their new home, they were not happy with the general standard of finish. They were concerned that the builders controlled the house buying process and put pressure on them to complete their purchase even if the house was not fully finished. They felt that builder's systems were not robust, little or no real control over trades and lacking in robust communication systems between site and sales. The general feeling about the warranty providers was that they worked with the house builder; some advocated that they should be employed and paid for by the customer and not the builder.

The interviews reinforced the old estate agent's phrase of *Location, Location, Location;* this is still a major factor in choosing a new house. The question of whether a house was just somewhere to live or an investment brought out the fact that the majority still see it as an investment as well as somewhere to live. The general feeling was that purchasers did have confidence in the house builder, the levels of confidence varied not only for the company but also for their site, sales and after staff. Every one interviewed claimed that the house was not finished when they were asked to move in despite in many cases having snagged the house themselves. They all felt that the builder lacked attention to detail with the finishings of their new house.

The responses to the importance of technical elements suggest that the customer and the house building industry tend to see things differently. The customers whilst agreeing that the structural elements are important see this as given and think that this aspect has been covered by warranty providers and building control. The customers do however feel that the finishings aspect and usability of the house from day one are also on great importance. The customer response to the pictures of brickwork show that they often do not have any technical knowledge and that appearance is their main criteria for acceptance. The customer's responses to the questions on the scope of the warranty also show a lack of knowledge; whether this is due to lack of confidence in the warranty or just lack of reading the documentation was unclear.

8.4 The Large Scale Survey

The large-scale survey produced a return rate of 28.3%, which was slightly disappointing, however as this next section will show, the responses did indicate similar trends to the interviews and thus the relatively small response rate was not considered to be unrepresentative of new house purchasers as a whole. As previously detailed, this questionnaire asked purchasers of new houses to consider twenty statements, they were then asked to express their thoughts on the importance of each statement and also whether their expectation's in relation to the statement in their new house had been realised. (Appendices F1; F2 & F3 contain SPSS charts).

As was anticipated, due to the fact that the list of statements had been compiled from interview responses and then trailed with the interviewees to check the accuracy of the statements, the majority of responses placed each of the statements in either the *very important* or *critically important* category. Had this not been the case, the findings from the interviews would have been placed in jeopardy in terms of being representative of general public opinion. Out of the twenty statements, the response of *critically important* occurred twelve times as the highest frequency response. The issues that

were considered to be critical included: inspections during construction by third parties; sales teams passing on option choices; build teams including option choices in the build; the opportunity to inspect and snag the house before legal completion; the house to be completely finished before the purchaser being asked to legally complete; good after sales service; their house being of show house standard or better; cleanliness on moving in day; scope and cover of warranty being explained; heating system that allows use of whole house; energy efficiency and low running costs and the whole experience being problem free.

The other eight statements had a response of *very important* as the highest frequency; the margin between the two was on occasions very small. An example of this small margin was the responses concerning the builder snagging the house before asking the purchaser to snag, 45.2% felt that this was *very important* and 43.5% felt it was *critically important,* the number of responses different was five. This was perhaps unexpected when considering that 55.1% of purchasers felt that it was *critically important* for them to snag the new house themselves, they being inexperienced in this type of inspection.

It is interesting to note that the *finishes* elements of the new house were grouped together and given a *very important* response whilst the service from the builder and his team were also grouped together and rated *critically important.* It could be suggested from this that the customers place more importance on the service they receive from the builder than the end product itself, with the *soft issues* being more important than the *hard issues*, this finding would concur with the research of Kristensen et al. (2000).

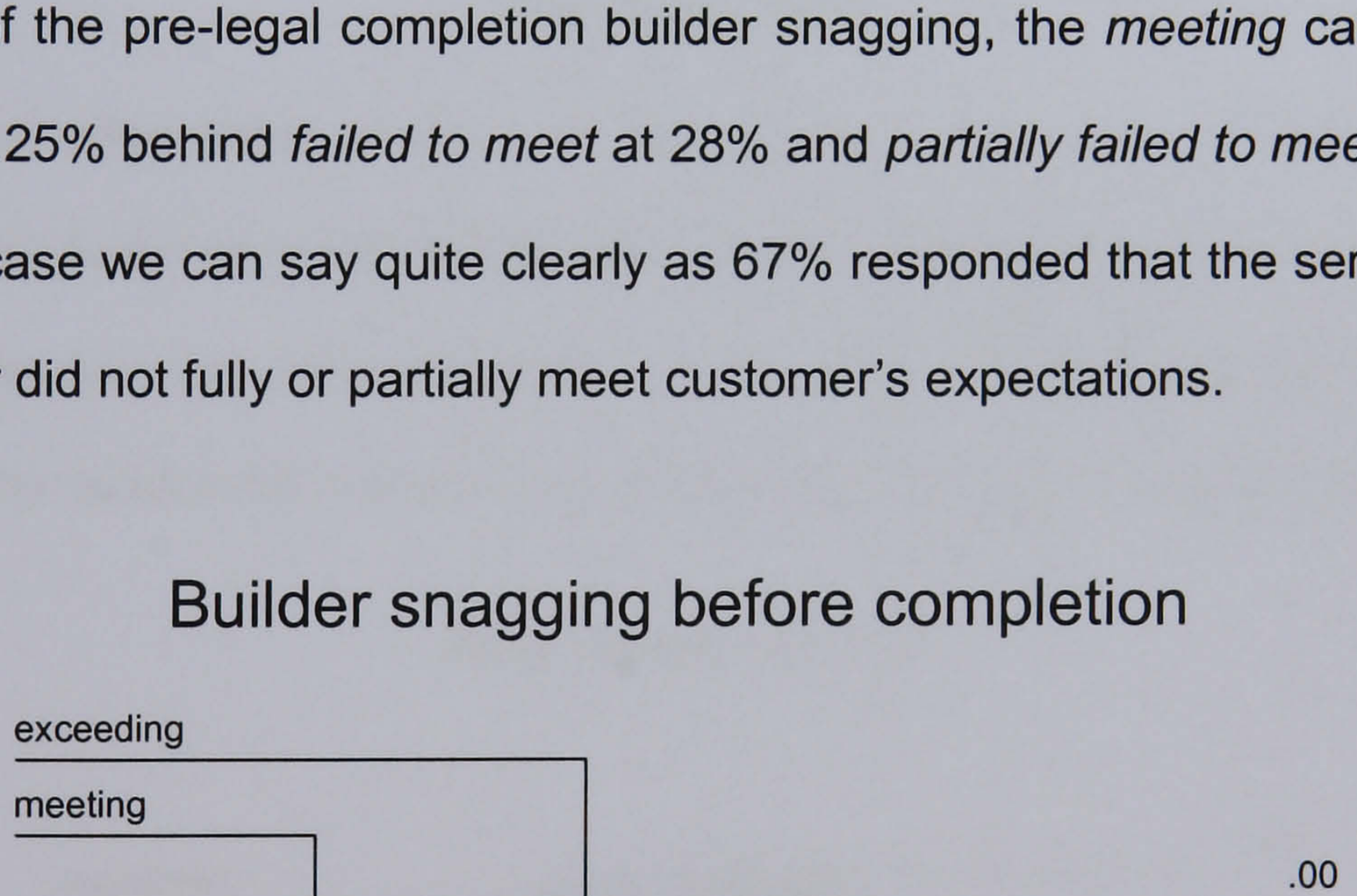
8.4.1 The Findings

In terms of how the new houses lived up to their customer's expectations the detailed picture was neither a fully positive nor fully negative one. In only thirteen out of the twenty categories was the majority response that the new house was *meeting* the customer's expectations, although in seventeen of the twenty categories *meeting* was the largest single response.

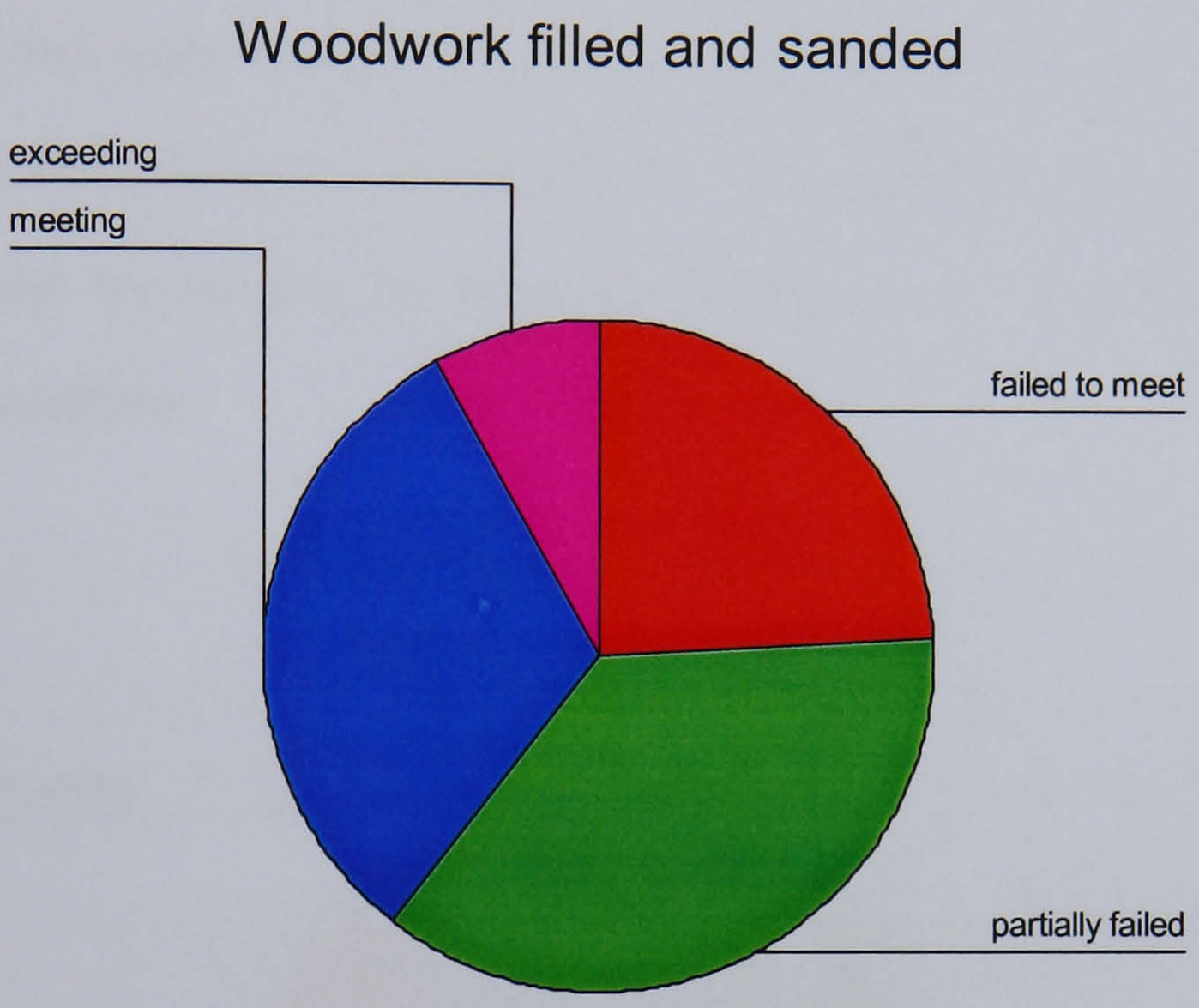
8.4.1.1 Meeting Expectations

In the three categories where *failed* or *partially failed to meet* was the largest response two out of three were again service or *soft issues*. The categories were: builder snagging before completion; woodwork filled and sanded before painting and after sales service, in all of these categories either the customer's expectations were the largest single responses.

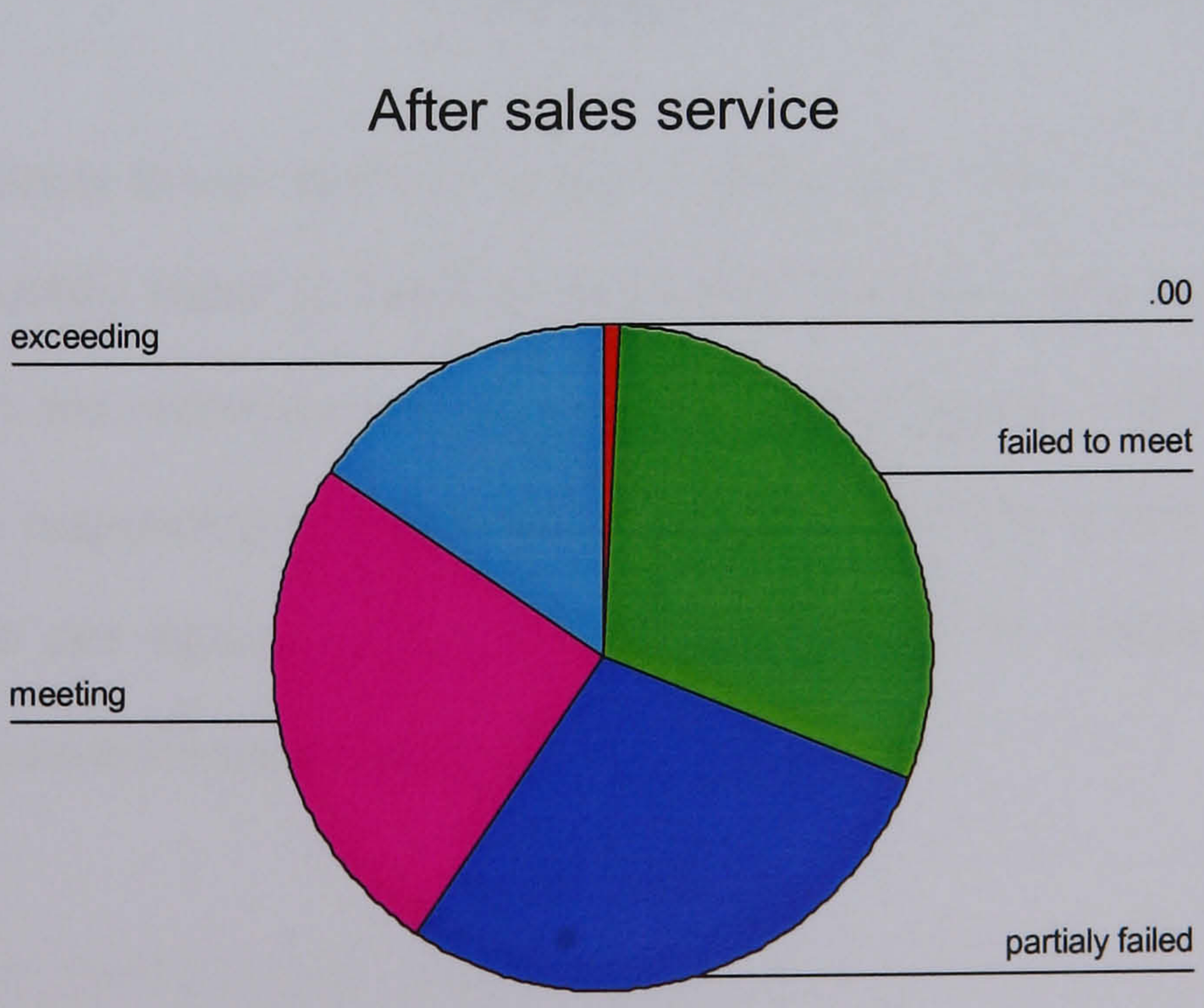
In the case of the pre-legal completion builder snagging, the *meeting* category was in third place at 25% behind *failed to meet* at 28% and *partially failed to meet* being top at 38%, in this case we can say quite clearly as 67% responded that the service provided by the builder did not fully or partially meet customer's expectations.



In the case of the woodwork filled and sanded before painting, the *failed to meet* category was in third place at 24% behind *meeting* at 31% and *partially failed to meet* being top at 36%; once again in this case we can say quite clearly as 60% responded that this aspect of the technical service provided by the builder did not fully or partially meet customer's expectations.

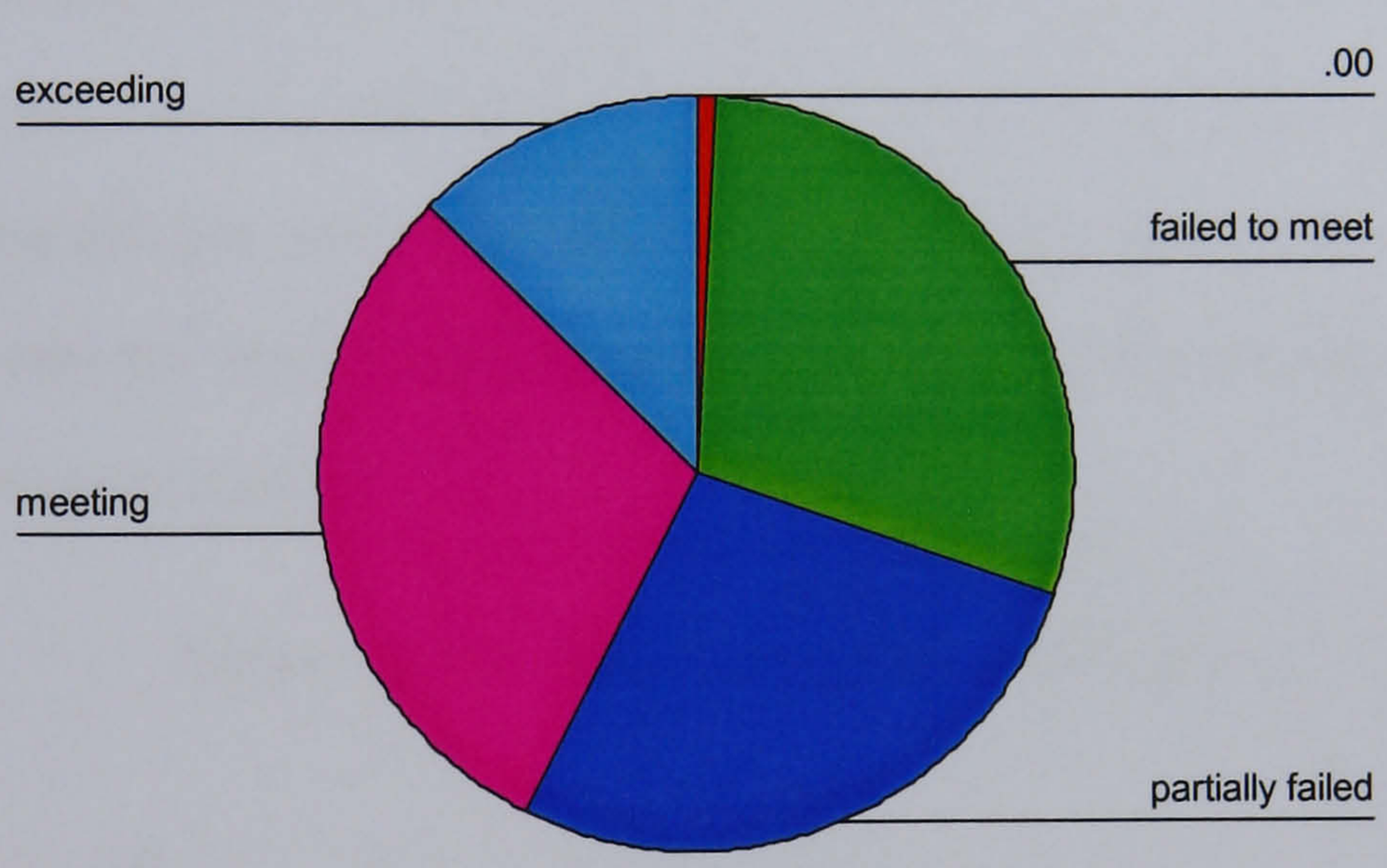


In the case of after sales service, the *meeting* category was in third place at 25% behind *partially failed to meet* at 28% and *failed to meet* being top at 30%; once again in this case we can say quite clearly as 59% responded that this aspect of the service provided by the builder did not fully or partially meet customer's expectations.



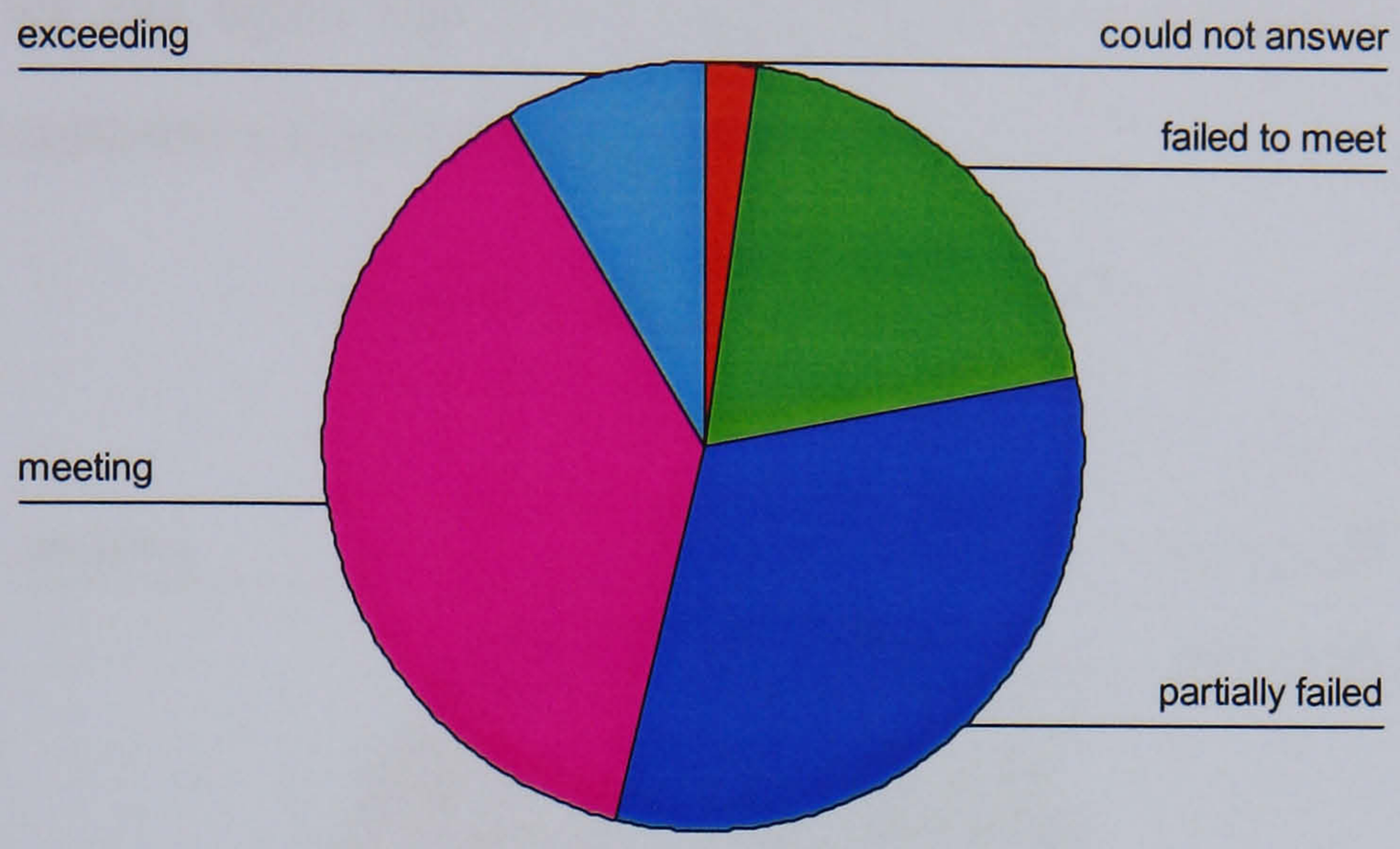
In four categories where *meeting* or better was the highest response, the majority of responses was in fact that the house either *failed* or *partially failed to meet* expectations. These four categories were: finished before completion; show house standard or better; external works usable and secure and buying being a problem free experience. In the case of finished before completion, *partially failed to meet* was in third place with 27% behind *failed to meet* at 30% and *meeting* being top with 30%, the margin between top response and second being only 0.3% and the overall majority of 59% responding that the new house either *failed* or *partially failed to meet* expectations we can again rate the service provided by the builder as not fully or partially meet customer's expectations.

Finished before completion



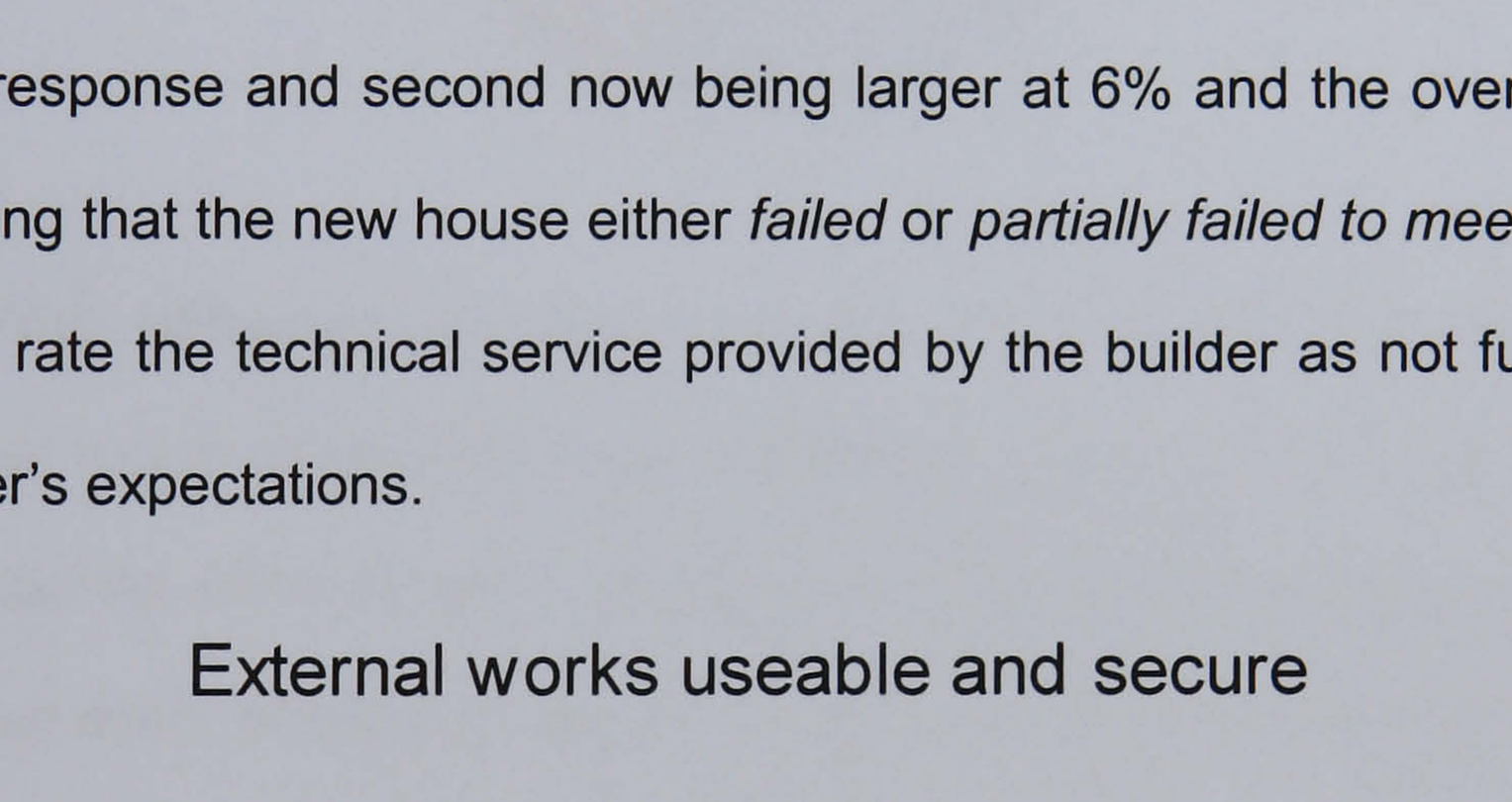
In the case of show house standard or better, *failed to meet* was in third place with 20% behind *partially failed to meet* at 32 % and *meeting* being top with 38%, the margin between top response and second now being larger at 6% and the overall majority of 52% responding that the new house either *failed* or *partially failed to meet* expectations we can again rate the service provided by the builder as not fully or partially meet customer's expectations.

Show house standard or better



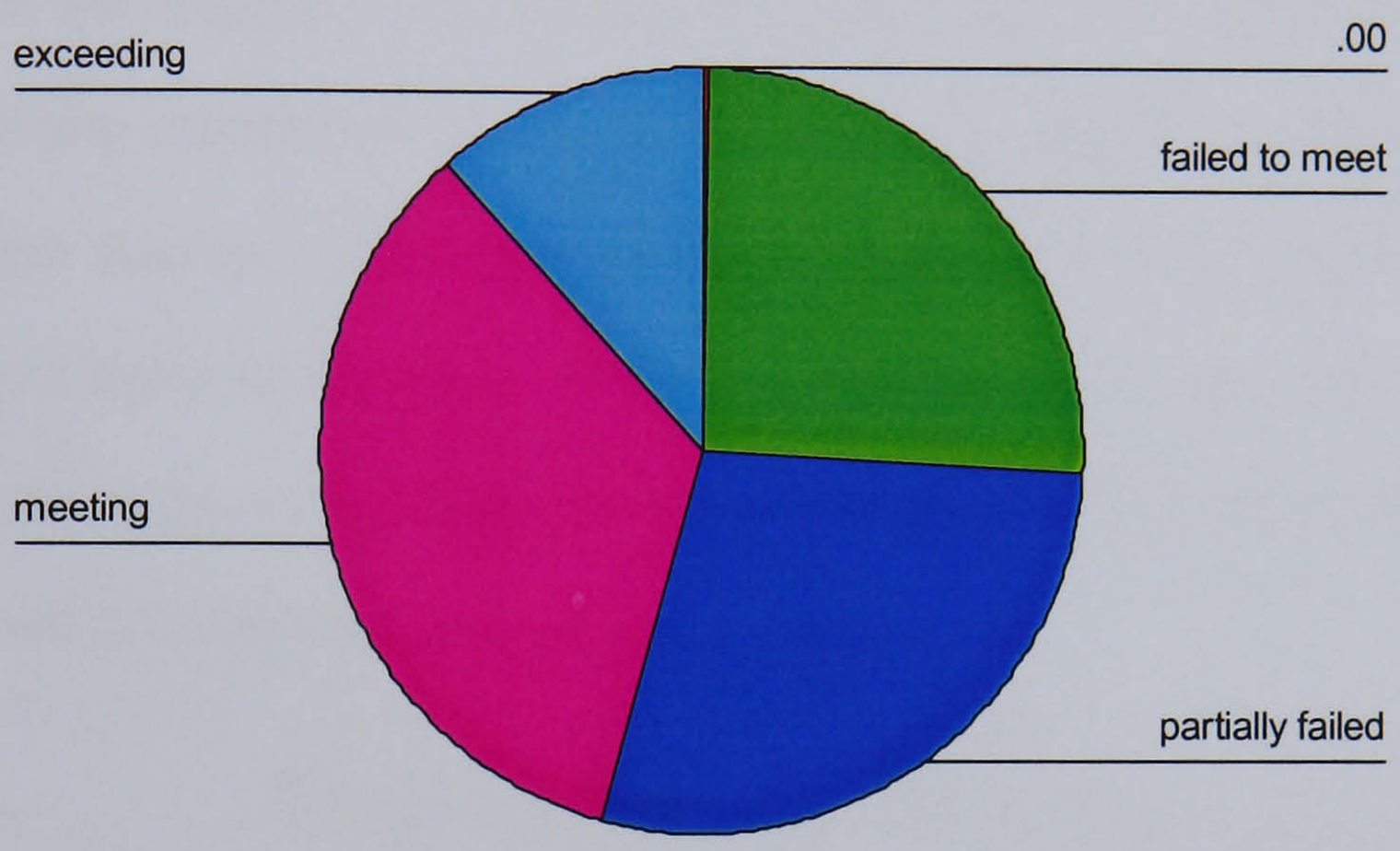
In the case of external works usable and secure, *failed to meet* was in third place with 23% behind *partially failed to meet* at 31% and *meeting* being top with 38%, the margin between top response and second now being larger at 6% and the overall majority of 54% responding that the new house either *failed* or *partially failed to meet* expectations we can again rate the technical service provided by the builder as not fully or partially meet customer's expectations.

External works useable and secure



In the case of buying being a problem free experience, *failed to meet* was in third place with 25% behind *partially failed to meet* at 28% and *meeting* being top with 34%, the

margin between top response and second now being smaller at 4% and the overall majority of 54% responding that the new house either *failed* or *partially failed to meet* expectations we can again rate the service provided by the builder as not fully or partially meet customer's expectations.

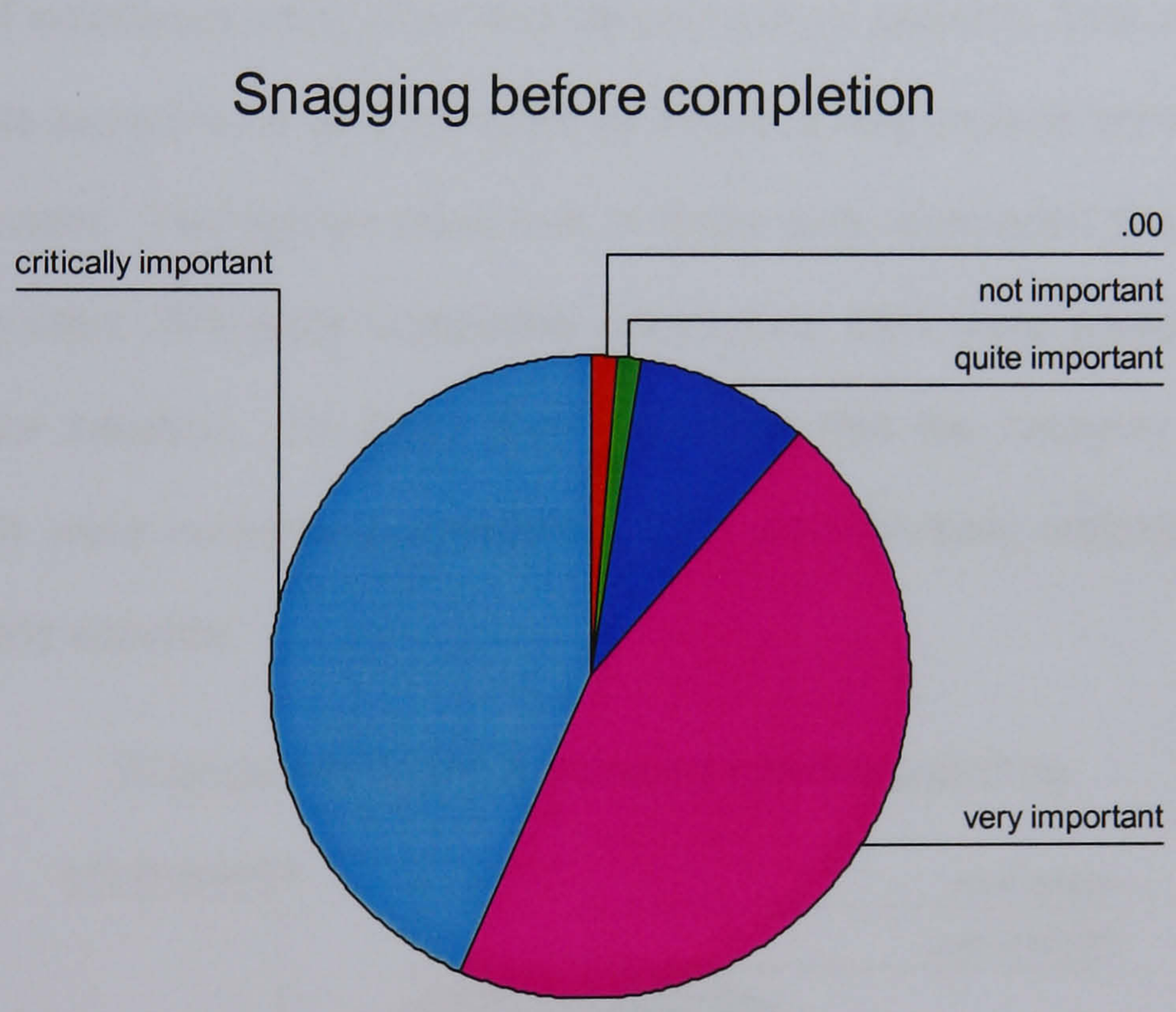


Of the remaining categories where the highest response and the majority response was *meeting* or higher there were three categories where over 40% of the responses were that the builder either *failed or partially failed* to meet the customer's expectations. This shows that even where one would normally say that customers are satisfied with their new house the margin between satisfaction and dissatisfaction is perhaps closer than it should be, in only five of the categories was the *meeting* and above response more than 75% of the total.

These findings do not concur with the 2000 Housing Forum/MORI survey figure of 87% of customers being satisfied with their new homes or the initial survey figure of 73% of customers being satisfied with their new homes, they indicate that the figure is more in the region of 65% of customers finding their expectations being met or exceeded.

8.4.1.2 Importance and Meeting Expectations

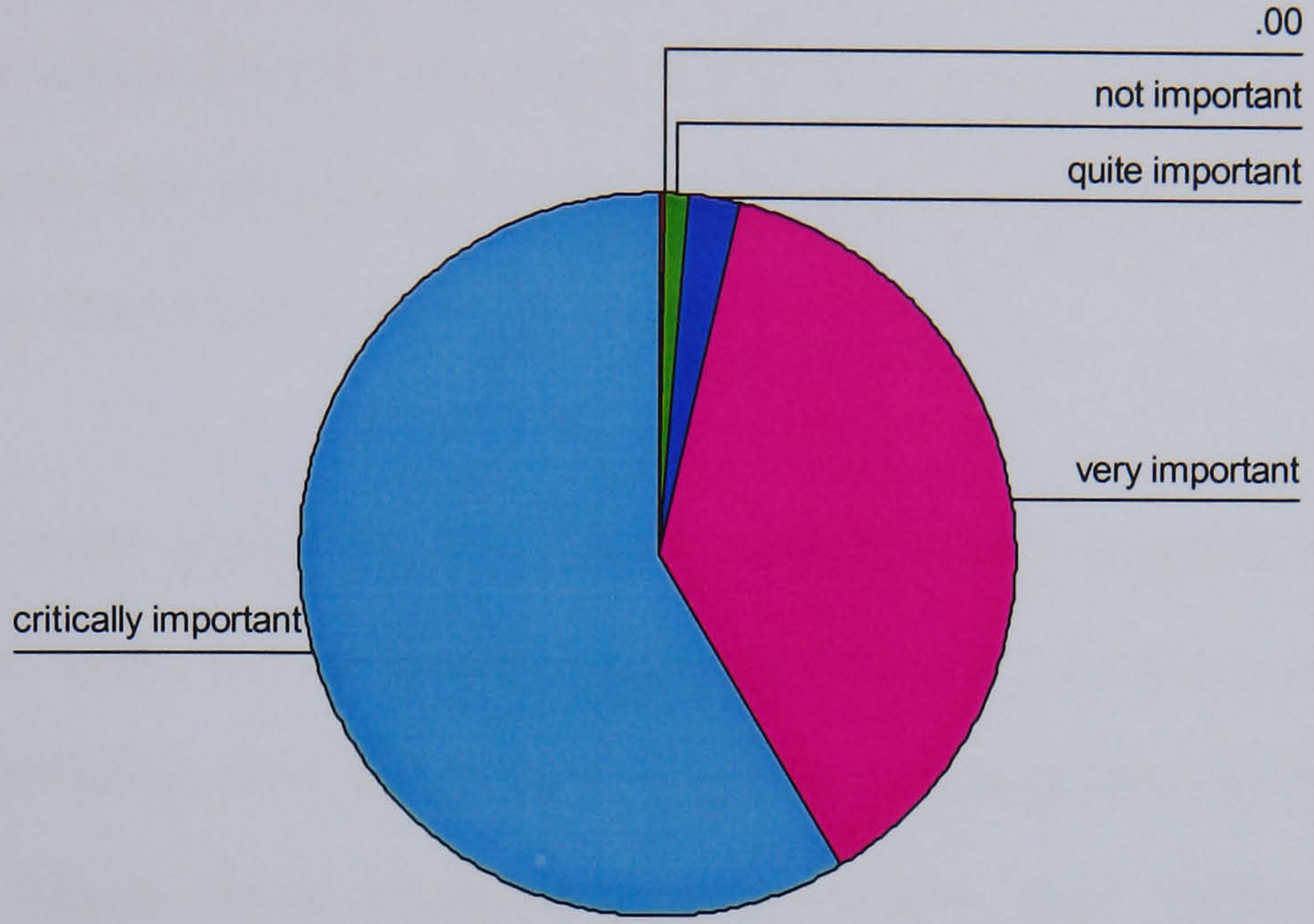
Looking again at the three categories that produced a failed or partially failed to meet response we see that in the case of the first category, builder's snagging before completion, that 45% of respondents considered this aspect to be *very important* and 43% of respondents considered it to be *critically important*. The figures show that of those who responded that the category was *very important* 19% were completely unsatisfied, 44% were partially unsatisfied and only 37% were satisfied. Of those that responded that the category was *critically important* 43% were completely unsatisfied, 29% were partially unsatisfied and only 28% were completely satisfied. From these figures it is clear that the customer's do consider this to be an important category and that the builders have totally failed to satisfy this expectation possibly through either ignorance of this being so important to their customers or as a deliberate policy. This last assertion will be discussed later in the thesis. .



In the case of after sales service, 38% of respondents considered this aspect to be *very important* and 59% of respondents considered it to be *critically important*. The figures show that of those who responded that the category was *very important* 30% were completely unsatisfied, 30% were partially unsatisfied and 40% were satisfied. Of those that responded that the category was *critically important* 33% were completely unsatisfied, 27% were partially unsatisfied and 40% were completely satisfied. Whilst the level of attention paid by the builders to this item seems to be consistent at 40% of

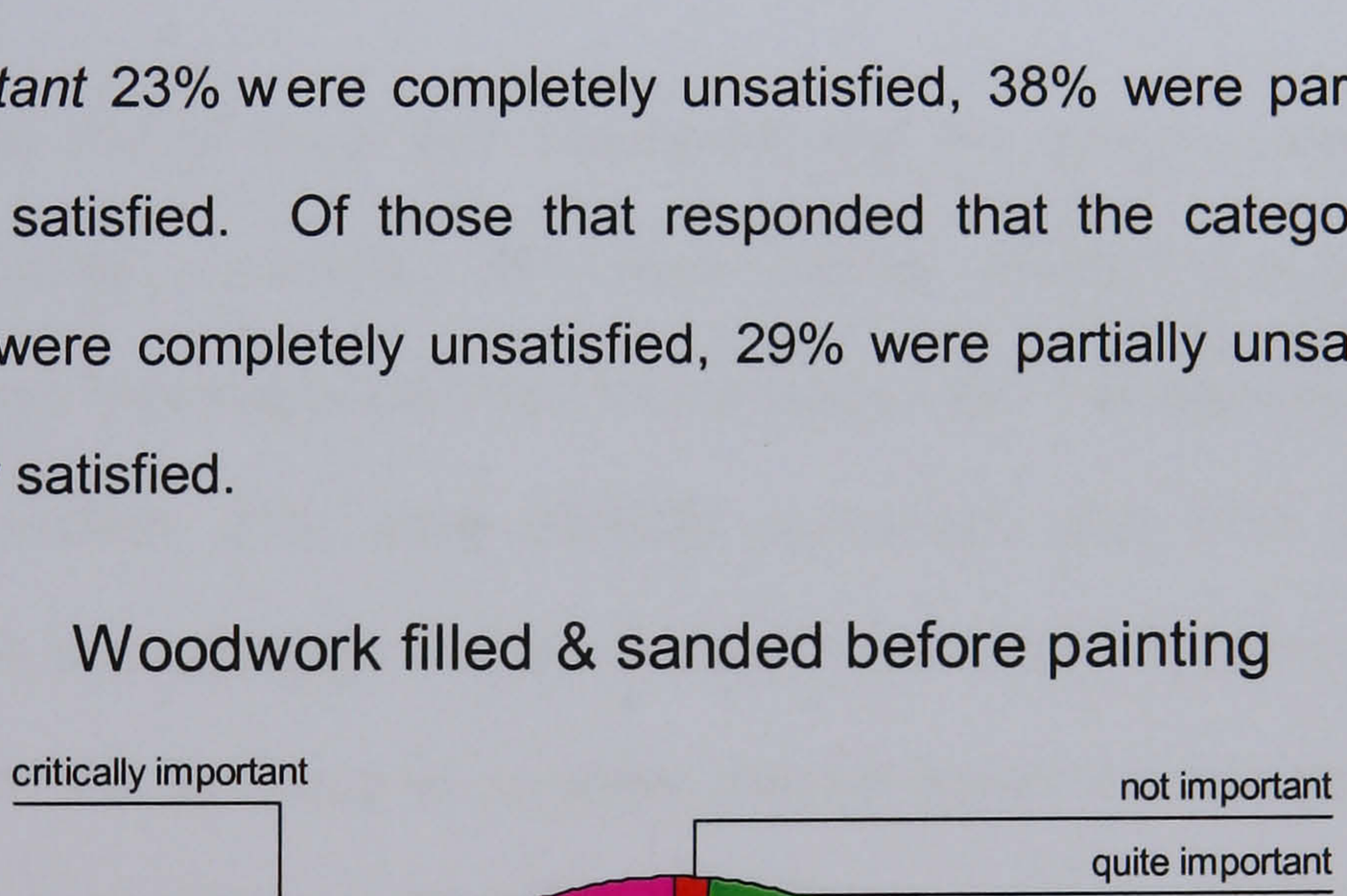
customers being satisfied it does not represent a good level of attention to the expectations of their customers.

Aftersales service



In the case of woodwork being filled and sanded before painting, 51% of respondents considered this aspect to be *very important* and 40% of respondents considered it to be *critically important*. The figures show that of those who responded that the category was *very important* 23% were completely unsatisfied, 38% were partially unsatisfied and 39% were satisfied. Of those that responded that the category was *critically important* 26% were completely unsatisfied, 29% were partially unsatisfied and 45% were completely satisfied.

Woodwork filled & sanded before painting



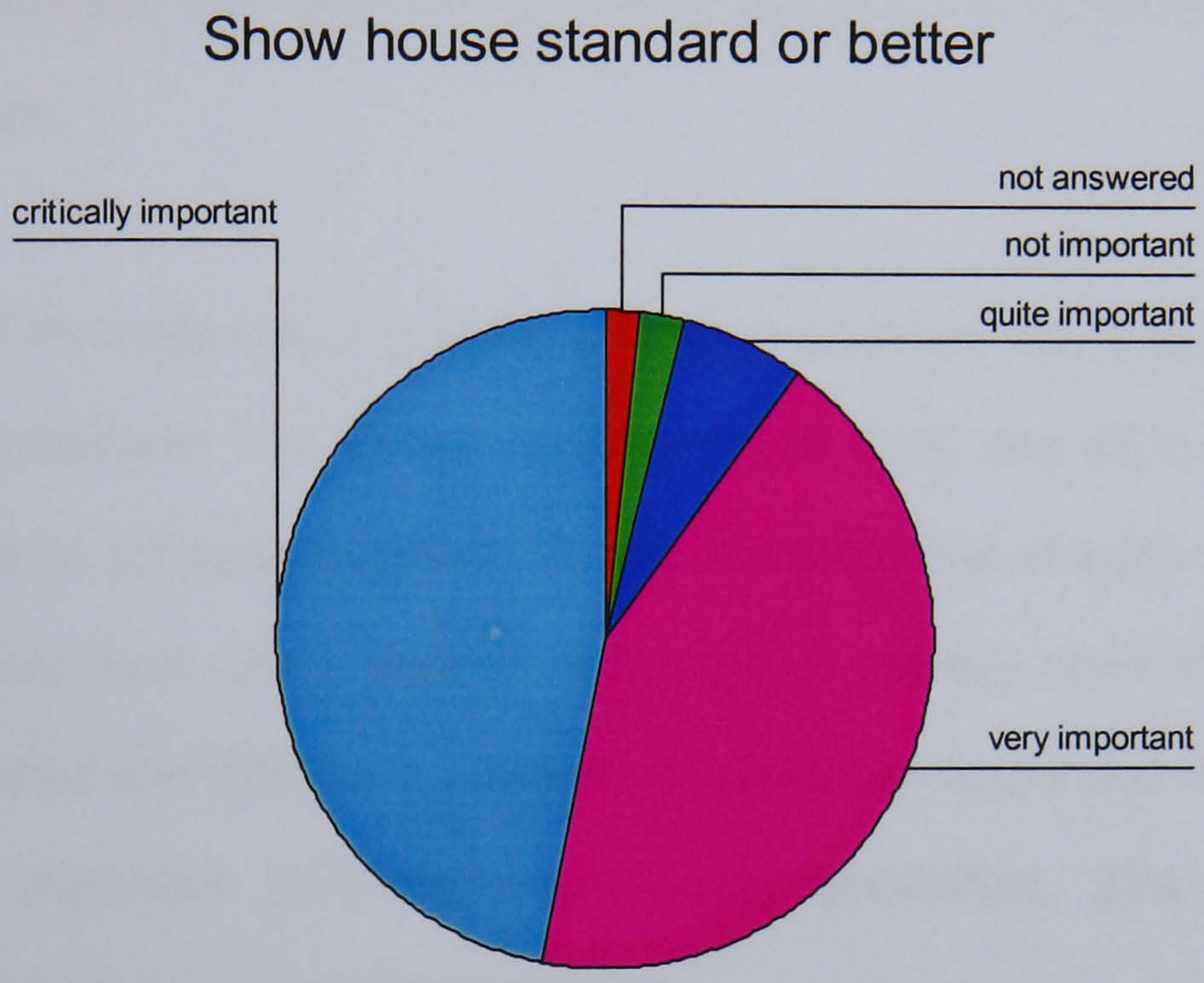
Whilst the level of attention paid by the builders to this item seems to be consistent at around 40% of customers being satisfied, again it does not represent a good level of attention to the expectations of their customers. In both these last two cases the lack of delivery against expectation may well be caused by the customers and the builders having differing definitions and thus expectations of what constitutes after sales service in terms of scope and acceptable delivery and what level of sanding and preparation work should be considered to be 'normal'.

Looking at the cases of the four categories where the largest response was of *meeting* expectations or better, but the overall majority was *failed or partially failed to meet*, we can once again focus on the responses of very important and critically important. In the case of the house being physically finished before legal completion, 37% of respondents considered this aspect to be *very important* and 56% of respondents considered it to be *critically important*.

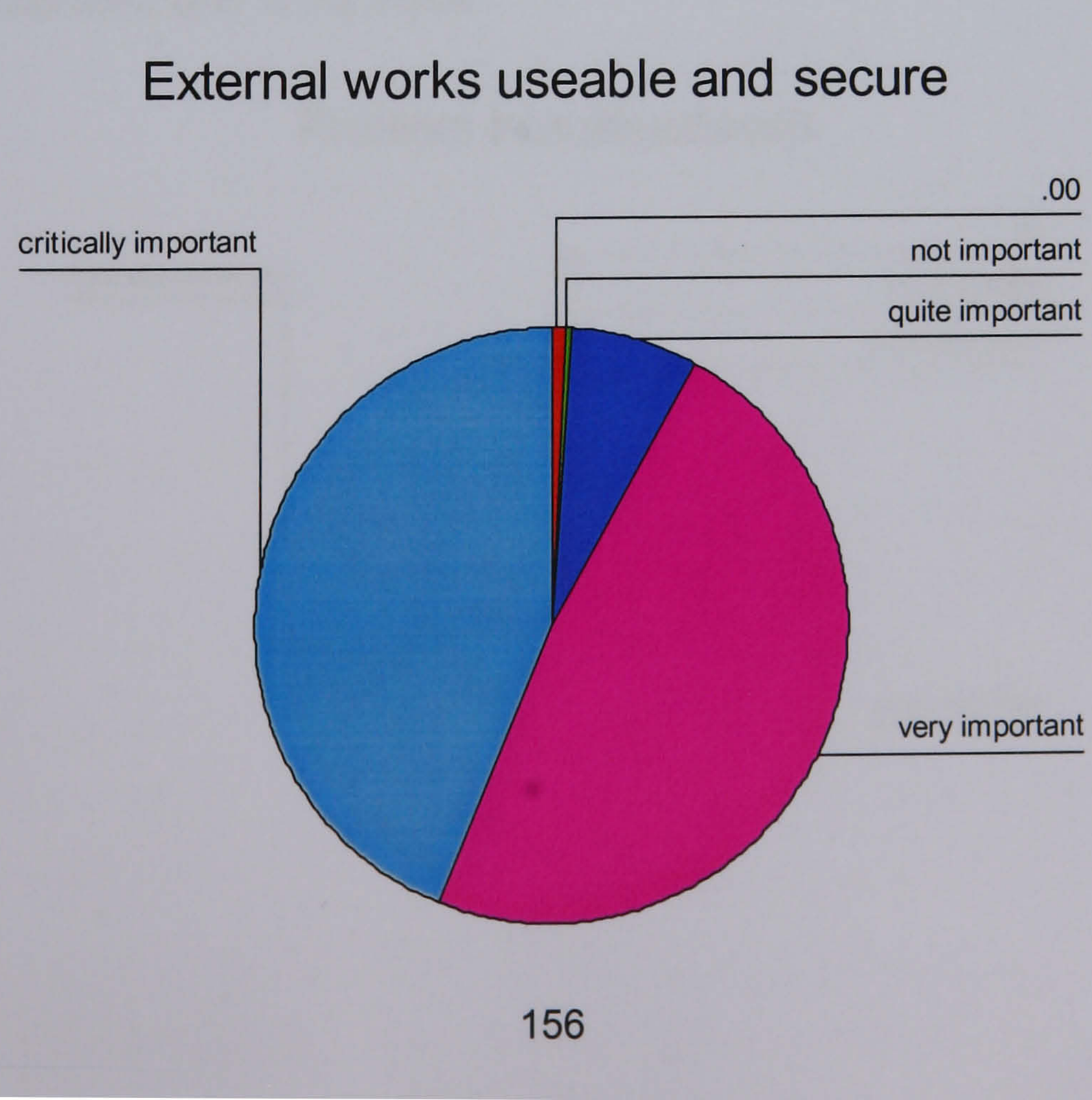
The figures show that of those who responded that the category was *very important* 28% were completely unsatisfied, 39% were partially unsatisfied and only 35% were satisfied. Of those that responded that the category was *critically important* 32% were completely unsatisfied, 21% were partially unsatisfied and 47% were completely satisfied. This is one category that the author of this thesis is particularly concerned about in that with the purchase of no other product would a seller be bold enough to offer or a customer prepared to accept an incomplete product. Yet this is quite clearly happening with only an average of 42% being completely satisfied with the house at the time of legal completion.

In the case of the house being of show house standard or better, 43% of respondents considered this aspect to be *very important* and 47% of respondents considered it to be *critically important*. The figures show that of those who responded that the category was *very important* 17% were completely unsatisfied, 38% were partially unsatisfied

and 45% were satisfied. Of those that responded that the category was *critically important* 25% were completely unsatisfied, 29% were partially unsatisfied and 46% were completely satisfied. These figures show how important the customer feels that the standard demonstrated in the show house is in terms of shaping their expectations and of how inconsistent the builders seem to be in delivering this standard.



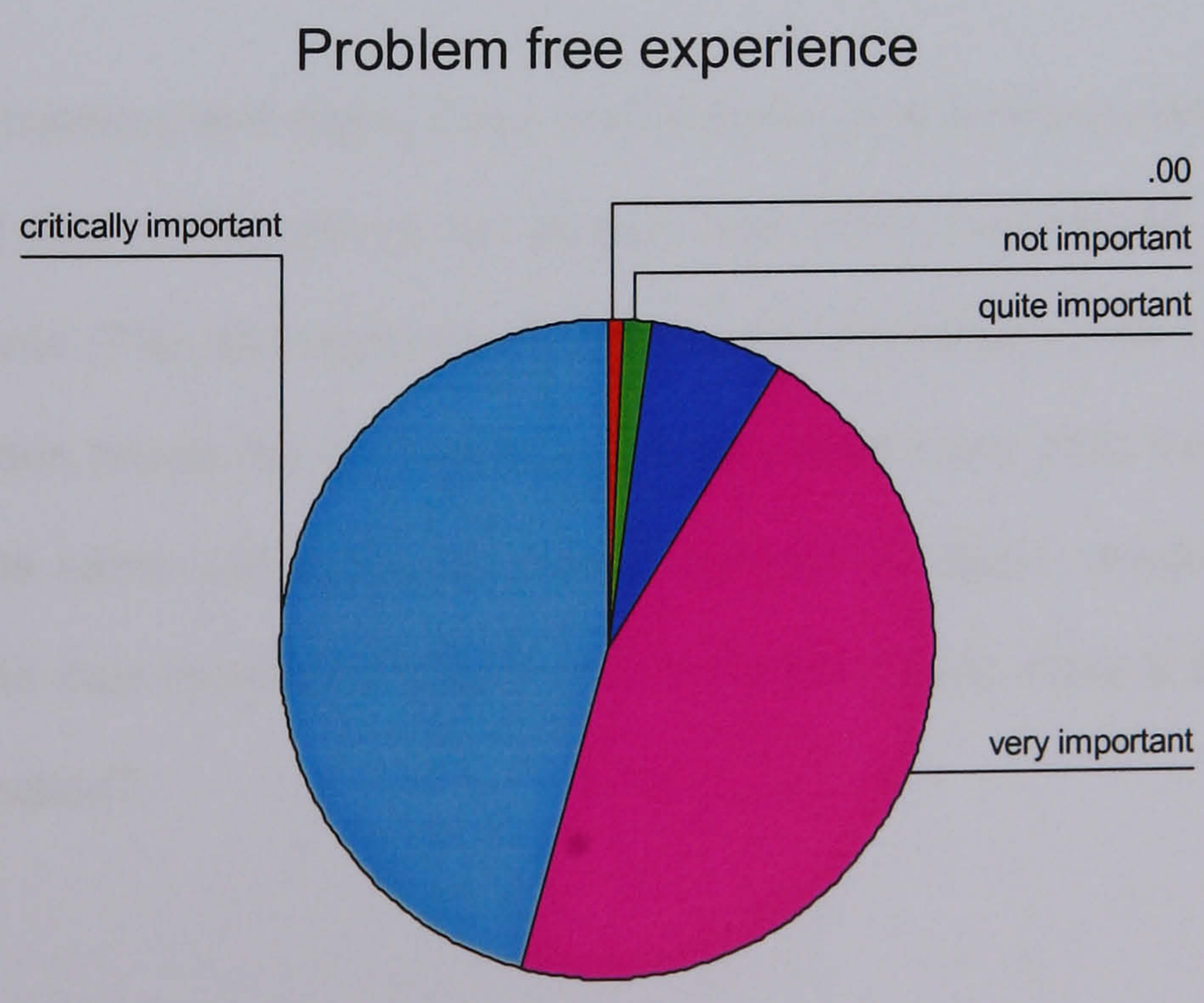
In the case of the external works being useable and secure, 48% of respondents considered this aspect to be *very important* and 44% of respondents considered it to be *critically important*.



The figures show that of those who responded that the category was *very important* 21% were completely unsatisfied, 35% were partially unsatisfied and 44% were satisfied. Of those that responded that the category was *critically important* 25% were completely unsatisfied, 26% were partially unsatisfied and 49% were completely satisfied. These figures perhaps demonstrate the difference in emphasis between the builder's priorities and the customer's priorities, again a point that will be discussed later in the thesis.

In the case of the house buying process being a problem free experience, 45% of respondents considered this aspect to be *very important* and 46% of respondents considered it to be *critically important*. The figures show that of those who responded that the category was *very important* 20% were completely unsatisfied, 31% were partially unsatisfied and 49% were satisfied. Of those that responded that the category was *critically important* 31% were completely unsatisfied, 25% were partially unsatisfied and 44% were completely satisfied.

This set of figures again indicates that the customers and the builders are not working to the same set of criteria leading to differing sets of priorities and expectations, again this will be discussed later in the thesis.



In the remaining thirteen case categories, the majority response and the highest single response was *meeting* or better, there were still high numbers of responses in the *failing* or *partially failing to meet* category. These response rates varied from 18% in the case of energy efficiency of the new house and the heating allowing the use of the whole house to 47% in the case of both plasterwork being smooth and flat and controls and features being explained. Out of these thirteen case categories, two were 18%; one at 22%; two at 23%; one at 34%; two at 35%; one at 42%; one at 44%; one at 46% and two at 47%, this shows that even where customers are considered to be statistically satisfied with their new homes that there is still a high degree of dissatisfaction.

It is suggested that this may be explained by the fact that the customers have little in the way of criteria other than their own individual experience by which to make these assessments, with each purchaser using a different set of criteria and these all different to the ones that the builder is using. In order to see if the number of new houses that the purchaser had experience of made a difference to these figures cross tabulations were made between expectations and number of houses.

8.4.1.3 Prior Ownership and Expectations

Out of the two hundred and eighty three respondents, one hundred and seventy (60%) had not owned new house previously; seventy five (27%) had owned one new house previously; twenty (7%) had owned two new houses previously; nine (3%) had owned three new houses previously and nine (3%) had owned more than three new houses previously. The same categories were then considered again, would the number of new houses and thus increased experience of the purchaser make a difference to the levels of satisfaction?

The three categories where *failed* or *partially failed to meet* was the largest response, snagging before legal completion; after sales service and wood work filled and sanded before painting, were again considered, comparing the overall percentage satisfied in these categories with the percentages of satisfied customers based on the number house previously owned. In the case of snagging by the builder before legal completion, 33% of all respondents were satisfied, when the percentages for each category of buyer, first time, second time etc. were considered, the following percentages of each group satisfied were found, 35% of those who were first time buyers were satisfied; 23% of second time buyers were satisfied; 40% of third time buyers were satisfied; 43% of fourth time buyers were satisfied and 43% of greater than fourth time buyers were satisfied.

These percentages with the exception of second time buyers are greater than the overall percentage, the second time buyers were 10% below and the other experienced buyers were up to 10% above the norm. Whilst this could be significant, the number of responses in these groups was small and thus could not be considered as representative of the house buying population as a whole. The second and third (and over) buyer figures could indicate that the new house buyer has become more experienced and after the first new house has higher expectations that are once again undelivered, they then lower their expectation for all subsequent purchases and are thus satisfied when these new lower expectations are delivered.

In the case of after sales service, the overall percentage of satisfied customers is 41%. Looking at the individual categories of buyer we see that first time buyers agree with this percentage; second time buyers are just below on 39%; third time buyers are above on 50 % and those who have bought four and over are considerably lower on 33%. Again it could be argued that the more experienced customer has modified their expectations to that which they know can be delivered; the four and over buyer figures

are again based on small samples where one more response could make a disproportionate increase and thus could also be in line with this trend.

The previous two categories covered *soft issues* the service provided by the builder. The third category where the highest and overall response was that customers were not satisfied was the category of woodwork being filled and sanded before painting, which is a physical defect or *hard issue*. The overall percentage of those satisfied with this category was 40 %; this figure was bettered in the first time buyer figures, 48% were satisfied. Second time buyers were less than satisfied with this aspect of their new house, they returned a lower figure of 28%, the third time buyer figure was back to the overall figure, 40% and the four and over figures (33% and 44%) again being based on low response rates could also be argued to conform to the overall figure. This set of figures could again be indicative of increasing experience of house buying and modified expectations.

The four categories where the highest response was *meeting* or better, but the overall majority of responses was *failed or partially failed to meet*, were again considered against these new criteria of number of houses owned and thus experience of new house buying. In the case of the house being finished before the customer was asked to legally complete the overall response was that 42% were satisfied, this figure was repeated with minor deviations throughout the different groups, the only difference was in the fourth time buyer group where the figure was 22%, but again this was based on a very small number of responses and could equally be in line with the overall figure of 42% being satisfied. This category does not require any experience on the part of the customer to judge whether the house in finished on the day they move in it is a matter of fact and thus a *hard issue* and therefore, the figures are as expected.

The category that asked if their new home was of show house standard or better produced a satisfied rating of 46%. The figure dropped slightly with second time

buyers at 41% satisfied, up significantly for third time buyers at 70% satisfied and then back to the norm for the other groups 33% and 44% (again the last two groups the figures being based on a small number of returns). The second time buyer figure at 41% is in line with the experience concept, this time they look more closely and are not as happy, but the third time buyer figure of 70% satisfied is somewhat surprising. This figure represents either a fairly major downward swing in expectations or the fact that the new housing industry has significantly improved its quality over the last twenty years.

This last suggestion is not confirmed by the findings from the four and over owner groups, although as has been previously stated they are based on small response rates. This category is neither completely fact nor customer's subjective judgement, the show house standard is a factual *hard issue,* but the expectations when applied to the customers own house are based on the customer's memory and interpretations of the show house.

In the case of external works, the overall figure of customers being satisfied was 46%. The first time buyers exceeded this figure at 48%, whilst the second and third time buyers were less at 39% and 35% respectively. The four and over group were high at 66%, but again this figure cannot be taken as representative and could with a larger sample meet the norm of 46%. These results are again representative of customers that having gained experience in new house buying are now looking closer at what the builder is offering and being less satisfied.

The last case is that of the house buying process being a problem free experience, in this category the overall percentage of those who were satisfied was 46%. The first time buyers were over this figure at 51% being satisfied; the figure drops with second time buyers to 39%, goes back up with third time buyers to 45%. Once again the four and over category result is based on a small sample and is thus not necessarily

accurate at 33% each. These figures again indicate that experience of the process may make the purchaser more critical and thus less satisfied with the overall buying process.

When considering the results for the other categories where customers are on the whole satisfied, based on number of houses owned it can be seen that there is no clear correlation between satisfaction and number of homes owned, the figures in some categories vary little and in others the spread is as much as 40%. The suggestion here is that it is the actual categories and customer's interpretations of the categories that produce the wide range of response rates and not the number of houses previously owned.

8.4.2 Outcomes from Large Scale Survey

There were several outcomes from the large-scale survey. The customer-derived statements from the interviews used in the large-scale survey were shown to be acceptable to the respondents in the large-scale survey. The majority rated them as either *critically* or *very important,* and therefore would consider them to be the basis for a set of performance criteria that could be used to measure customer satisfaction and thus quality in private new houses.

The rest of the findings again show that whilst some customer responses seem to very critical of the house building product or process, when taken in conjunction with their other responses the picture formed is very unclear. There seem to be no individual statements that control the overall satisfaction levels, there are, however groups of statements concerning such as finishes that emerge as significant in terms of overall customer satisfaction. The findings show that the number of new homes previously owned again does not necessarily improve or decline with the number of new homes owned, each customer has their own expectations that may or may not have been

modified by owning new homes in the past. The survey has shown that UK house building industry is not addressing the needs of their customers, nor is it actually delivering acceptable performance standards based on its own criteria.

The findings show that on the whole the customers are not getting the standard of service nor product that they think they should in private new houses. They have low levels of confidence in the builders that they will deliver the new house on time, finished and to the correct standard. In comments made on the survey proforma, they do however express long-term confidence in the product. Many say that once they have got the builder to do certain jobs and they have done others that two years into occupation they will be happy with their new home.

8.5 Summary

The large-scale survey has confirmed that the categories chosen from the interview data are the issues that the customers have major concerns about. The large-scale survey has also shown that customer's experience does have some effect on responses especially when the customers are not satisfied, but it does not appear to be the same where customers are on the whole satisfied. It clearly demonstrates the problems involved when asking the general public to make decisions regarding quality and satisfaction of aspects of new houses when they do not have a clear set of criteria against which to make their judgements. The experience of previous houses may help in some aspects; however the customers are totally untrained and inexperienced in the technical aspects of housebuilding to make some judgements. It does not help that the housebuilders all whilst conforming to the legislation, i.e. the building regulations and to the warranty provider's set of standards still rely on subjective assessments from site mangers, contract managers and sales personnel as to whether a house is complete or not or whether it meets the required standards in terms of finishes.

The author of this thesis is suggesting that far from confirming the results gained by the Housing Forum/MORI surveys, this questionnaire survey has shown that the categories and statements of this and any other survey are capable of so much personal interpretation that any robust statistical analysis of the results would purely be an exercise in statistics for their own sake. The statistical analysis would be robust and reproducible, however the data on which it is based, i.e. the statements/questions are capable of being interpreted in so many ways by the respondent that without equally robust criteria to guide the respondent the results going forward to analysis are basically flawed. It is suggested that there is sufficient doubt about the reliability of all such questionnaires and surveys as to make them ineffectual. This theme will be discussed in detail in the next chapter.

[redacted] FACTORS AFFECTING SURVEYS

9.1 Introduction

This chapter will set out the factors that can affect customer satisfaction surveys, discussing the factors and their implications on the outcome of the survey. It will then introduce a rationale on the mechanism of how these factors do influence customer satisfaction by looking at the psychological phenomenon of Cognitive Dissonance. It will then introduce and discuss another psychological phenomena which when used as a management tool can help to eliminate the causes of Cognitive Dissonance, thus ensuring that the survey is a more accurate representation of customer satisfaction.

9.2 Customer Satisfaction

What do the results analysed in the last chapter actually say about quality in the new private housebuilding industry? It is the view of the author of this thesis that the answer to the question is a great deal, however not necessarily in the manner that the housebuilders, the warranty providers and the HF/MORI are currently interpreting them. They see the 87% (HF/MORI 2000), figure of customer satisfied with their new home as an indication that the industry is doing well in terms of quality. The figures of this main questionnaire survey potentially agree with the head line figure of 87% (HF/MORI 2000), but when you look at the analysis of the individual categories and see the split between those who are completely satisfied or better and those who are not completely satisfied it is very difficult to add up all the different category scores and arrive at a customer satisfaction rating of 87% (HF/MORI 2000). (The HF/MORI summary sheets for 2000; 2001 & 2003 are contained in Appendix G)

Clearly this is not a case of manipulation of statistics, so why is there a discrepancy between individual category scores and overall satisfaction scores? In the opinion of the author of this thesis one of the main reasons for this discrepancy, which was

touched on in the last chapter, is the lack of clear written criteria upon which both housebuilders and customers can judge the performance and standards achieved in new houses by the builders. Yes, there are the Building Regulations, and the major warranty providers have their standards, but both these provide either legislation or guidance on technical matters and whilst they are in the public domain are not presented in a form that is easily read and understood by the non-technical house buying public. The guidance given in these documents is extensive and clear in the areas that they cover, however even these regulations and guidance notes are open to an amount of subjective interpretation.

9.2.1 Technical Aspects

Even in these technical areas where there are criteria, some of it mandatory legislation, the customers are still finding fault with the builders. If we look at the twenty categories in the main questionnaire survey, the only category that is partially covered by statutory legislation would be the house being completely finished prior to handover and certified by the building control officer accordingly. In this category over 56% of customers (160 out of 283) were not satisfied, stating that it either failed or partially failed to meet their expectations. When it comes to the major warranty provider, their web site claims that on 160,000 new homes protected by their warranty each year that they will receive claims on fewer than 4%. When put into a figure rather than a percentage this would mean up to 6400 new homes where the customer thinks that the detailed regulations of the warranty provider have not been met.

The provider also goes on to say that *'in over 60 per cent of resolution cases, HNBC finds for the home owner against the builder and requires him to correct some or all of the disputed items.'* Again when put into figures rather than percentages this will mean in the order of 3500 successful claims made by non-technical customers against professional housebuilders. This is not a criticism of the building control system or

warranty provider, merely a comment that even where housebuilders have clear defined technical criteria, they are not always meeting them. The author of this thesis suggests that if all new house customers were to engage the services of a technically competent surveyor to inspect their new home, then the number of claims against the warranty would be likely to be far greater. Thus, suggesting that the 3500 rulings made by the NHBC against builders for technical defects does not represent the actual picture of how well the builders are complying with actual warranty provider standards and the building regulations.

9.2.2 Customer Dissatisfaction

This then shows that there is both real and justified customer dissatisfaction with the technical standards achieved by some builder of new homes, the actual level of which is difficult to determine, however we do know as a minimum it is approximately 4% or 6400 customers per year from the published NHBC figures. In the initial survey of this project that dealt with technical matters, the level of customer dissatisfaction with the standards achieved in these technical areas such as brickwork, roofing and electrical work was between 5% and 7%. This dissatisfaction is based on either a visual or performance based dissatisfaction at the way the new house functions made by the customer, and may be the result of one or more actual technical defects of which the customer has no knowledge. This figure will not reflect the number of customers who do not involve the NHBC, they may go to law as in the case of the Westhoughton group referred to earlier in the thesis, or not bother to make a claim as many customers have indicated to the author of this thesis during this research. It would therefore, be reasonable to suggest that a realistic figure of dissatisfaction due to the occurrence of technical defects is more likely to be in the order of 10%.

9.3 HF/MORI Surveys

Thus, the level of dissatisfaction due to non-adherence to legislation and standards produced and published for the guidance of the housebuilding industry is going to account for approximately 10% of the 13% of those that the HF/MORI 2000/2001 survey highlighted as dissatisfied with their new home. This only leaves 3% to cover those who are dissatisfied with their new home based on the finishes and finishings elements. Yet this, through the experience of the author of this thesis, and the results from the interviews and the main questionnaire survey are the most important aspects of a new home to the customers and the one that gives rise to the most dissatisfaction. It is also the aspect that for which there is little or no criteria written for either builder or customer to refer to, however the NHBC does suggest that customers could normally expect standards that an average tradesman can achieve. It is therefore suggested, that the true figure of those dissatisfied with their new home is closer to the figure found in the main questionnaire survey as being 35%, (65% were satisfied). These figures from the main questionnaire survey when the 10% for dissatisfaction for technical defects is subtracted suggest that there is a figure of 25% of customers unhappy with the finishings aspect of their new home. From the work done to date, the author of this thesis suggests that this is a more realistic figure.

9.3.1 Finishings

Therefore, in one of the main areas of concern according to the interviews and main questionnaire survey identified by the customers, the finishings aspect of new homes, there are only very subjective and vague set of criteria by which to assess the quality and standards achieved. There is also the BS EN 8000 series of standards, but again these are of a generic nature and do not go into the specifics of new house building in the way that the customer would find useful. The NHBC did attempt to draw up a set of finishes standards, they were circulated internally for comment and subsequently it was decided that they would be unenforceable and thus were never introduced. We therefore have based on the lowest new house price of £100,000, an industry worth

according to NHBC figures a minimum of £16bn per year, which effectively has no finishes criteria for their customer to judge the finished product.

This not only makes it difficult for the house buying public when they come to snag their new house but also when they are asked by such as HF/MORI and this research to comment on the standards achieved in their new house. They are only able to use whatever previous experience they have in new house purchase and apply this their current situation, and this may be 'coloured' by good or bad previous experiences, but will be a totally subjective opinion. If it were possible to hand over two totally identical houses to come to two different purchasers, keeping them apart so as not to allow them to discuss their new homes, and then asking them a series of questions about their satisfaction levels with different aspects of finishes the results would differ. The level of difference may not be great, but the differences would be there. If however, the experiment were to be repeated, and this time the purchasers were given a set of detailed finishes and performance criteria upon which to base their assessment and were told that they could only use these criteria then the results may still not be identical, but it is suggested that they would be much closer.

9.4 The Need for Customer Satisfaction Criteria

Human beings cannot give opinions, which must be based on some form of comparison, without a set of reference criteria. In the case of new housebuilding they either use previous experience or adapt a set of criteria from another consumer product and use these. These criteria will then have been the subject of modification by way of selective recall by the memory of the purchaser and again by the manner in which the object whose criteria were chosen has actually performed in use. Thus, even in the best scenario no two purchasers are going to have had identical experiences and thus will not be using the same set of criteria when giving opinions regarding their new home. This will therefore, fundamentally affect the findings of all opinion-based

surveys that are currently conducted on new houses and raise questions as to their usefulness.

The industry by avoiding the issue of criteria is actually making life difficult for itself. The author of this thesis has first hand experience of dealing with the general public and handing over new houses, and this lack of firm criteria can work against the housebuilder. When customers, according to the builder complain unreasonably, the builder has nothing on which to base their assertion that the customer is being unreasonable other than the fact that another customer was quite happy with that particular aspect of their new house. This is hardly a response that is going to be accepted by the complaining customer. Furthermore, when these two customers get together and talk about the problem, the builder's claim will have disappeared as the accepting customer may now have been convinced by the first that the same problem does exist in their new home, they just did not recognise it before. The author of this thesis has seen this phenomena spread all round a site when people get to know each other and visit each other's houses. This can result in action groups being formed and the builder being coerced into doing not just the corrective work but also many other things that would normally be considered to be unreasonable extra works even by the warranty providers, just to pacify the residents.

9.4.1 The Benefits of Robust Criteria

This is where a robust set of criteria would be of use to the builders, if the criteria formed part of the contract to buy the house, then yes the builder would have to deliver to the customer an end product that met these criteria, but then also the customer would be restricted in the nature of his complaints. Instead of the builders being subject to 160,000 different sets of criteria per year (NHBC website figures) they could sit down with the warranty providers and customer representative groups and put together one set of finishings criteria that they could control and more importantly, think

that they can all meet on a consistent basis. This could then be presented to their customers as part of the sales package at the start of the process. This would take away much if not all of the subjective nature of customer's own criteria and make the task of producing a consistent end product easier for the builder. The main questionnaire survey in this research showed that nearly 52% of respondents said that in their opinion their new house did not meet the standards of the show house, which could in itself start customers looking more critically at their new home and start to complain about certain aspects. Currently the show house is the only set of criteria that the customer has against which to judge the finishes of their new home; the builders could also pre-snag each house ensuring that each new house meets the same show house criteria. This would mean that the customer would then only be looking for minor personal subjective blemishes on their snagging visit. It would appear that many builders prefer to miss the pre-snagging process and put right only what the customer finds on their snagging visit.

The concept of a set of criteria may initially be considered by the housebuilding industry to be constrictive in that it would tie them into an auditable process of achieving set standards in predetermined aspects of the new house and its finishes. However, the author of this thesis suggests that it would prove over a relatively short time period to be an asset. Once the standards have been set out and seen to be achievable, they would become the norm for the industry and all those working for the house builders and their subcontractors would be well acquainted with the standards that they must achieve. Conformance to these standards could then be assessed as work progresses in construction with stages being signed off prior to proceeding to the next stage and finally conformance certified to the customer at handover/legal completion. A safeguard being that legal completion cannot go ahead without the conformance certificate, again an aspect that was highlighted in the main questionnaire survey by nearly 57% reporting that their expectations of the house being finished at legal completion has either not been or partially not been met. This is an area that has

been subject to an initiative by the Council of Mortgage Lenders, whereby they will not release mortgage funds until a completion certificate has been issued. The author of this thesis has been informed by sources in the housebuilding industry that completion certificates are still being issued on incomplete houses to ensure the funds are released, thus, diluting the essence of this initiative. It must be remembered however that the current completion certificates relate to technical building regulation aspects and thus a house could be complete technically but still have finishes work to complete.

9.4.2 Third Party Verification Issues

This clear set of criteria will also help in the third party verification of customer satisfaction. The customers all have the set of criteria and the survey companies will also have the same set of criteria and can therefore ask their questions regarding customer's opinions safe in the knowledge that insofar as possible they are working on common ground. Thus, the results of these surveys would be more usable and they could be taken as a fair comparison across the sector and would indicate with a higher degree of reliability than at present, companies who are reaching high levels of customer satisfaction with their end product. These criteria as previously mentioned, would not completely eliminate all subjectivity from customer's responses to questions of satisfaction with aspects of their new houses, but would significantly reduce it.

During the course of this research project the psychological concept called *Cognitive Dissonance* was brought to the attention of the author of this thesis by Robin Burleigh who has past experience in researching customer satisfaction aspects in social housing. Their research team found that the results were not as expected; something was skewing the overall results and producing a higher positive attitude than was expected from the data collected. When further research was undertaken the concept of cognitive dissonance was identified and offered a possible explanation in that it affected the overall attitude of the subjects and thus skewed their results significantly.

Thus, the author of this thesis felt that it was necessary to investigate the concept and see whether cognitive dissonance could affect the attitude of new home buyers and thus account for some if not all of the anomalies highlighted by this research.

9.5 Cognitive Dissonance

Cognitive dissonance is a psychological concept first proposed by Leon Festinger in a paper entitled "A Theory of Cognitive Dissonance" published by the Stanford University Press in 1957. In this Festinger proposes that if a person who holds a particular belief, attitude, opinion or idea, [a cognition], is then exposed to another cognition, which is at variance with the first, that person will experience cognitive dissonance. This seeming imbalance between beliefs will create a motivational force for the person to take up a stance that will help to reduce the tension caused by the two disparate beliefs, even to the extent of completely changing a person's cognition regarding a certain item or concept in order to establish a consistent psychological state.

9.5.1 The Historical Background

The basis of a need to establish a consistent psychological state goes back to 1877, when Charles Sanders Peirce wrote an essay entitled "The Fixation of Belief", published in Popular Science Monthly. According to Tedeschi, *"Peirce argued that men are motivated to attain states of belief and to avoid states of doubt. Doubt was considered to be an uncomfortable state, an irritant, from which men sought relief. When a man is in the state of belief, the cognitive basis for habit exists, since, given the proper circumstances, he will know how to act. But when a man is in a state of doubt, the basis for action does not exist."* Tedeschi et al. (1971) Peirce stated in the essay "*as soon as a firm belief is reached we are entirely satisfied, whether the belief be true or false."* Reprinted in Fisch, (1951) P.60. This element of belief gives a stable basis for man to order his surroundings; it eliminates any contradictory aspects that could

cause doubt. This is an important aspect, when two contradictory stances exist, an element of doubt is engendered, which of the two is the correct stance and how do you know which is true and which is false? This could set up conflict in a person's consciousness leading to actual distress, especially if one of the stances is held quite strongly by the person. They go on to say that: *"This need for cognitive balance is at the base of the cognitive consistency theories in social psychology."* Tedeschi et al. (1971)

9.5.2 Festinger and Carlsmith

Festinger and Carlsmith conducted laboratory experiments with psychology students; their results and conclusions were published in 1959 in the Journal of Abnormal and Social Psychology, vol. 58, pp.203-210. The experiments consisted of a group of students being asked to undertake a very boring and repetitive task for about an hour, some were then given an 'explanation' about the experiment and asked if they would help in the running of the experiment. At this point three streams were created, some of the students were asked to help with no financial reward, one set of students were offered $1 per session and others $20 per session. They were then introduced to another student who was ostensibly going to do the same boring repetitive task that the first student had undertaken, this second student was a 'plant', they had been hired by the psychologists to act the part. The first student introduced the second student to the experiment and told them about the task, to which the second student said that they had heard from other students who had undertaken the task that it was dull and boring. In the three streams of students the one who had not been paid agreed as did the one who was paid $20, yet the one who was paid just $1 disagreed and said that it was an enjoyable task.

This was repeated for many groups and it emerged that this trend was constant in the $1 category. Even though the first student knew that the task was boring, they wanted

to help in conducting the experiment and thus encouraged the others to participate. It was concluded from this experiment that personal attitudes and beliefs could change and that persons could adopt a belief that was at variance with their initial thoughts, but fitted in with the scenario they found themselves in. The significance of the inducements was that it was shown that the larger the inducement the less likely it was to produce a change in attitude, inducements did not produce a true change in people's attitudes and beliefs.

9.5.3 Subsequent Research

This concept since its postulation by Festinger in 1957 has generated a great deal of research activity, some being of a supportive nature as well as some being of a dismissive nature. It has however, made people go out and look at the situation and from it many new ideas and postulations have ensued. One researcher Wicker, who in 1969 looked at the area of attitude against actions, concluded that after reviewing over 50 studies that attitudes seldom are predictors of behaviour. Tedeschi et al. discuss the findings of Bem (1967), where he suggests that "*dissonance is actually the consequence of the individual's own inferences about the causes of his own behaviour.*" *Tedeschi* et al. (1971)

Freedman and Sears (1965) suggest from research that people neither discard information that is counter to their own views nor are attracted to information that is in tune with their own views. This could be determined as somewhat strange when we are told that the tension caused by dissonance arousing information is unpleasant. Perhaps the findings of Mills, Aronson, and Robinson (1959) explain this by concluding that dissonant information often has value for the recipient. What is this value? Could it be something that has been missing from the scenario? Could it be some form of criterion that could be used to measure the veracity of a particular piece of information? Certainly if a person's attitudes and beliefs are based on incomplete or erroneous

information, then 'reality' could be the cause of dissonance. It may be that when our subconscious is working in these circumstances of erroneous or incomplete information it actually seeks out more information so that a more complete picture is formed.

9.5.4 The Effects of Criteria on Cognitive Dissonance

Would it therefore, be more difficult to produce cognitive dissonance situations if the subjects had a full set of criteria by which to judge the events that they are observing or in which they are involved. They could then go into the situation with full knowledge of what to expect and when, thus the effects of the experience would not have any dissonant consequences.

How does cognitive dissonance relate to the measurement of quality in new houses? The basics of cognitive dissonance revolve around the fact that the person is undergoing psychological tension due to two differing sets of information. The author of this thesis is suggesting that this phenomenon is occurring repeatedly in the new housing field and thus makes accurate measurement of quality in new housing very difficult. The conflicting information consists of the customer's own perceptions of what their new house will be like when they move in and the reality of what they get on the day of completion and over the subsequent first two years of occupation. It is suggested that it is this difference between expectations and outcomes that sets up the dissonance. The effect of the person eliminating the dissonance, the phenomenon observed by Festinger and Carlsmith, is manifested in the way that the customer then says when surveyed that they are satisfied with their new house. They have seemingly changed their attitude on the quality aspects of their new home to fit in with the reality of the home they have now got.

The author of this thesis suggests that this change of attitude is more palatable to the customer than admitting both publicly and privately that the house they have bought is

not living up to expectations. After all the customer has carefully chosen their new home, for location, size and layout, he has gone to a large well established housebuilder who has shown them a well appointed show house where all the work is of a high standard, the house is covered by a warranty scheme that is subject to inspections, so what could go wrong? The customer has a positive mental picture of their house at legal completion, just like the show house, all finished, clean and tidy with no problems.

9.5.5 The Origins of Customer's Perceptions

So where do the customers get their other perceptions of what their new house is going to be like? They may consult the relevant standards, but as previously discussed these standards are very imprecise when it comes to describing or detailing what a new homebuyer can expect in terms of the finishes achieved in their new home.

If they know someone who has bought a new house they can ask them what to expect, but if they do know anybody who has bought a new house this avenue for finding information is closed. They will then perhaps look at the next most expensive purchase that people normally make and compare that experience, the new car. Other than that they must rely on the impression of the show house and their own imagination to arrive at a set of criteria by which to judge the overall quality of the purchase that they have just made. This in theory would be not problematical if the builders actually met the customer's basic criteria of finishing the house prior to legal completion. As previously stated approximately 57% of new house purchasers complain that their new house is not completely finished at handover. In terms of actual standards for finishings, again as previously stated, there are no detailed universally agreed finishings standards for new houses.

9.5.6 The Face Saving Theory

In terms of reducing/resolving the cognitive dissonance that may result from problems encountered in buying such as a new house, Zimbardo suggests that: *"...these processes however, may be subservient to more basic phenomena which characterize this approach as a 'face saving theory,' in which the individual is motivated to modify and distort both internal and external reality in order to make them appear consistent and having made the 'correct' decision."* He goes on to say that:*" dissonance also increases with the importance of the decision."* Zimbardo (1969) These comments seem to be consistent with the new house 'v' new car scenario, where surveys claim a figure of 87% of customers being satisfied with their new home, yet according to the J D Powers surveys on motor cars there are many people who are happy to be very critical and negative towards new cars that they have purchased. The house being often more than eight or nine times more expensive than the car and thus according to Zimbardo, dissatisfaction with a new house has the potential to produce dissonance more readily than dissatisfaction with a new car.

9.5.7 Judgement and Lack of Criteria

In essence what is being postulated here is that due to the lack of clear criteria upon which to judge the various elements and overall quality of their new houses, customers put together their own set of criteria. These criteria arise as a mixture of previous experiences if they have bought new houses in the past; from shared experiences form those who have gone through the process in the past; from their own wishes/desires about their new dream home; the housebuilders own advertising literature; the show house they have seen in fact anything and everything that has shaped their attitudes and expectations over the years. Thus, each customer has a unique set of criteria, and each set of criteria will produce unique expectations and demands from each customer for their new house. Some of these expectations and demands will be what the builders think of as being *reasonable* and many will be what they think of as being

unreasonable. Reasonable or unreasonable, these are the criteria that the customer will use when assessing their new house and these are the criteria that will shape their overall satisfaction rating.

Thus, when their criteria for different aspects/elements of the new house are not fully or partially met they are justifiably dissatisfied. This dissatisfaction stems from their personal criteria not being met in the absence of other more authoritative or agreed criteria. This explains the satisfaction ratings for the individual aspects/element, customer's responses can vary widely for an individual aspect/element, or can be totally in accordance with the rest of the sample and this does come out in the analysis of the individual aspects/elements. They are quite happy to say that this does not meet their criteria for presentation, usefulness, aesthetics etc., however when it comes to the overall satisfaction with their new home things are not quite so clear-cut.

9.5.8 The Effect of Major Purchases

Their new home is probably the largest purchase they have made to date, they will be paying for it for the next twenty-five years, it represents the culmination of their aspirations to date. They may have identified certain aspects of the house that they are unhappy about, they do not meet their criteria, but how robust are their criteria? Are they justified? Are they relevant? An element of doubt can easily creep in to their minds, the builder has handed over a house that he says is finished and to the correct standards, the customer assumes that either the warranty provider or building control has inspected the new house and passed it and they are impartial experts. Thus, the start of the mental conflict emerges and maybe the customer is wrong about some of their criteria.

The mind in its efforts to maintain its *cognitive balance* starts to doubt the persons own criteria or diminish its importance in the overall scheme of things. The purchaser's

mind tries to avoid the cognitive dissonant state by subduing the purchaser's own criteria and accepting the apparently more authoritative set of criteria of the builder and the inspection team. Thus, the person's stated public overall satisfaction rating of their new house is actually higher than would be the case based on the sum of their own criteria of the different aspects/elements of their new house. The effect of cognitive dissonance on the new house purchaser and their publicly stated satisfaction with their new house is to skew the overall result towards the higher side by perhaps as much as 20%. The purchasers are also loathed to admit publicly that their new house is not perfect and as Zimbardo, found the likelihood of cognitive dissonance increases with the value of the item in question and houses tend to be the largest single value item most people ever purchase.

We therefore have all the necessary ingredients for cognitive dissonance to be a modifying factor in customer satisfaction surveys for new houses, a high value purchase and an inexperienced customer base with little or no effective guidance on what to expect both during the purchase process and after taking possession of their new house. In addition to this we have a £16 billion industry that has no agreed and enforceable finishings standards. And whilst being committed to quality and customer satisfaction on paper, the housebuilding industry has in effect a monopoly situation. When building in desirable locations this could in fact reduce their striving to achieve high standards of quality and thus customer satisfaction due to the fact that they could sell each house several times over. The author of this thesis suggests that Impression Management is a psychological concept that if employed properly can help to eliminate the problem of cognitive dissonance.

9.6 Impression Management

So where does this psychological concept fit in? The impression management stems from social psychologists looking for ways to understand peoples' behaviour. Tedeschi

& Riess suggest the following definition: *"Impression management consists of any behaviour by a person that has the purpose of controlling or manipulating the attributions and impressions formed of the person by others."* Tedeschi & Riess (1981) As can be seen by this definition it was basically looking at interpersonal relations, the term *principle actor/actor* being given to the person that wishes to portray a certain role to those around him and the term *subject* to those that he wishes to influence/control. It is basically concerned with power; people take on identities and act out roles that have a bearing over their own destiny.

9.6.1 The Historical Background

Hovland, Janis and Kelley (1953), suggested that any *actor* able to convince their *subject* that the *actor* is both expert and trustworthy in the area concerned, would result in the *subject* being more likely to accept what the *actor* said as being true. This concept could also be used by *subjects* as a method of shedding responsibility, and was considered by French & Raven (1959), the acceptance of the authority of the *actor* enables the *subject* to hide behind the *actor* and abdicate all responsibility for their actions, placing all responsibility for the *subjects'* actions on this authoritative figure of the *actor*.

Schneider commented that: *"It is likely that successful impression management depends primarily, or at least importantly, on the ability of the actor to have knowledge of and control a wide range of behaviours, not only those directly designed to influence the calculated impression but also those behaviours that support and enrich the meaning of direct claims."* Schneider (1981) Thus, suggesting that the more deep the knowledge of the *actor* regarding the scenario that he wants to control the better chance there is that he will be able to control it. Impression management has wide ranging potential, Bem claimed that: *"personal contacts influenced opinions and buying decisions more than did the mass media regardless of the subject matter."* Bem (1970)

This quotation indicates the potential power of impression management in the commercial sector, and the author of this thesis suggests that this concept can apply equally to the role of company and customer. The company being the *actor* that wishes to control the sales transaction with their customer the *subject*.

9.6.2 Impression Management and the Problem of Cognitive Dissonance

So what is the link to cognitive dissonance and new housebuilding? As previously stated the author of this thesis suggests that Impression Management can also apply to organisations as well as people. If an organisation uses the techniques used by the *actor* to manage their customers, then it can set out an authoritative set of criteria that may well be accepted by the customers as claimed by Hovland et al (1953). The more authoritative the *actor*/organisation seems, the more the *subject*/customer will tend to accept the criteria. The existence of this set of universally accepted criteria means that customers should not be coming into the scenario with unreal perceptions and expectations. The *subject*/customer knows what to expect and similarly the *actor*/organisation knows what to provide as this is laid down in the standards/criteria. This situation should lessen the likelihood of a state of cognitive dissonance being created within the *subject*/customer along with the associated attitude changes.

Thus, impression management is a technique that could be employed by UK housebuilding companies to engage their customers in the housebuilding process. By involving the customer in the process it is possible for the housebuilder to take on the role of *actor* using impression management techniques and take control of the process. The *actor* and *subject* will thus be aware of what to provide and expect throughout the process of building and buying houses and accept the *actors'* imposed standards of behaviour and quality to be achieved. This acceptance by the subject of the actors' standards is in accordance with Hovland et al (1953) and French and Raven (1959) findings regarding subjects being willing to abdicate responsibility for decisions to an

authoritative figure. It is thus important for the housebuilder to establish this authority at an early stage in the process.

9.6.3 The Application of Impression Management

If these standards/criteria were established, then confidently and authoritatively presented to the house buying public, it would achieve much of the basic requirement in impression management. The customers would then have something by which to judge their own homes against in terms of quality. This would reduce the problem of different customers having different perceptions of what to expect from their new house and give the builder a better chance of providing a uniform standard of house. It would also reduce the likelihood of cognitive dissonance occurring, with the added bonus of the fact that the measurement side of the equation would now also be simpler. Without cognitive dissonance, and the inner tensions set up between customers' unreal perceptions of quality and actual quality achieved causing attitude changes, the results of surveys on quality would potentially be more accurate.

This research was initially concerned with identifying methods of improving quality in new private houses, and in order to achieve this end it is necessary to be able to both define and measure quality and establish standards in a manner that is accepted by both industry and the customer. If we consider the basic tenets of Total Quality Management (TQM), then these criteria should be based on customer requirements and acceptability. In the case of an industry with a large number of disparate customers who are not likely to be repeat sales in the short term such as the housebuilding industry, although the criteria for achieving TQM should be the goal it may not be logistically possible to achieve this goal. One way to achieve similar outcomes to TQM may be for the housebuilders to set their own standards and ensure that they achieve them on a consistent basis. Then by establishing a feedback loop from customers to builders, the criteria would over a period of time be modified by this

feedback, strengthened and given more ownership by the customers as a result of the feedback process. This is where the concepts of impression management fit into the private housebuilding industry process; it enables the private housebuilding industry to embark on the first phase of this road to TQM and improved customer satisfaction.

9.7 Summary

This chapter has considered the problems encountered when conducting customer satisfaction surveys that can affect their outcome. It has identified causal factors and proposed mechanisms to ensure that their effects are either lessened or eliminated. The factors and proposals are based on proven psychological research that could easily be applied to the UK housebuilding industry. However, the author of this thesis suggests that the housebuilding industry currently sees little incentive to address the quality issues and may be quite content to maintain the current situation. The lack of finishings criteria may cause some customers to make unreasonable demands, but taken over the whole sector this is not going to make huge demands on their profitability. This very same lack of criteria engenders the cognitive dissonance that when third party satisfaction surveys are conducted actually works in their favour and increases the number of customers who report that they are satisfied customers. Unless quality and customer satisfaction becomes a positive selling point and makes an addition to the profit margin of new houses then it is difficult to see that any real progress will be made in this area. The only other alternative would be to give the warranty providers such as the NHBC legislative powers to enforce some finishings standards, an outcome that has little likelihood of being realised.

As previously discussed in chapters five and six of this thesis, there are differences between the commercial sector and the housebuilding sector of the construction industry. The commercial sector has reportedly made steady progress in terms of improving quality and customer satisfaction; this has been a 'real' improvement in

which lack of criteria and cognitive dissonance have not been factors. In order to further compare the commercial sector and housebuilding sector in terms of quality and customer satisfaction the next chapter looks at one company in each sector and examines in detail their approaches to quality and customer satisfaction. A new conceptual model will be produced and discussed for each of the companies that will help to highlight the differences in approach and achievement that in this case is taken to be typical of the different construction industry sectors.

CHAPTER 10 - UK APPROACHES TO ACHIEVING QUALITY

10.1 Introduction

This chapter will look at examples of the way in which two UK construction companies from different sectors approach the concept of customer satisfaction and thus quality of end product. One company is a major UK housebuilder who uses warranty provider inspections and their own internal Quality Assurance (QA) system; the other a major UK construction and project management company has internal QA systems and also measures customer satisfaction levels. The housebuilding company has not been identified but is considered to be typical of the major UK housebuilders, and any criticisms made are directed towards the QA systems and checks used and are not necessarily meant to reflect on the overall quality of the end product of company concerned.

10.2 A Major UK Private Housebuilding Company and Their QA System

This particular system splits up the build process of a new house into eight separate sections, each section is designed to be checked and signed off if found to be correct. Only after the previous section has been checked and signed off can the next section of work begin. Thus the system if adhered to strictly, should prevent *technical defects* being covered up during construction which would then only surface during the occupation phase of the house. The system answers the criticism of some QA systems, in that they rely on end of process inspections as their quality control measure, this system has a series of milestone events that relate to sectional process inspections. These section inspections are or should be performed by competent persons, which means that if there are any defects, they should be located and remedial work under taken before the work proceeds to the next phase. This is

generally thought to be more cost effective than leaving any problems to be sorted out at the end of the build process.

10.2.1 Section One

The first section in this system covers site strip, excavation, foundations, filling, floors, service ducts, associated walls and garage bases, domestic drainage, paths and drives to base course and checking the substructure for line, level and verticality as well as clearing the plot of debris. This is a logical and practical end to the first section, many companies do this as a matter of course, the author of this thesis, when managing housing sites preferred to work in this way. It is much easier to work around a slab than a house; simple things such as the working arc of an excavator do not pose the same problems when working around a substructure at slab level than around a fully built house. There are logistical aspects of actually getting the superstructure materials to the house where paths and drives have not been formed. There is also the safety aspect of men being able to work on safe, clear level surfaces whilst constructing the superstructure. The path foundations also form an ideal base for the scaffold that will be required to provide a safe working place for the men as the building rises vertically. Using this section break and the processes contained in the section, demonstrates that a suitable and sufficient risk assessment has been done and that requirements under health and safety legislation have been considered. This section break also falls in with current industry norms and thus could be claimed to represent best practise in the industry.

It should be noted that there are British Standards and warranty provider standards that apply to the structural work in the substructure of new houses, thus it is relatively easy to check that these aspects of the construction do comply. It should also be noted that the range of permissible tolerances decreases markedly where sectional or modular systems are to be constructed on these foundations. In the case of sectional

construction such as timber-framed housing, tolerances of 3mm may be considered excessive in level due to the problems this will cause in the verticality and thus jointing of adjacent sections in timber framed housing. Thus, this section break also ensures that time is set aside for the foundation to be checked for line, level, verticality and square before superstructure commences.

10.2.2 Section Two

The second section comprises work to the superstructure of the house including all fan and vent sleeves, sub-frames for window and door openings if frames are not built in, service cabinets, clearing up debris and cleaning and checking cavity ties and cavity trays from ground floor level to the first floor level and the fixing of the first floor joists and covering or some form of decking to give a working platform for the next phase of construction. Where the actual floor is fitted the flooring used is water resistant and covered with a protection membrane that is removed once the build is complete. The section also involves checking the line, level and verticality of the building so far.

This is again a logical and practical section break; it is much easier to correct any defects at this stage than when the next storey of the superstructure is in place. It also corresponds with natural breaks in sequence of work for the relevant trades and is thus a natural break that will not disrupt the flow of work.

10.2.3 Section Three

The third section picks up at first floor level and covers the superstructure work up to and including the fitting of the wall plate ready for the roof. It covers the sub-frames for all first floor openings, the closure of cavities at cill level that are to receive ceramic tiles, as well as all garages and any associated porches that have not already been constructed, up to wall plate. Once again the section includes a clear up and checking

of the work that has been carried out. Walls are checked for line and level as well as verticality prior to the weight of roof structure being applied to the walls.

As before this is a natural break in the sequence of construction, and a good time to check all the workmanship. Once the roof is in place it becomes more difficult to identify and correct defective work.

10.2.4 Section Four

Section four consists of the main roof structure, with associated gables and chimneys, coverings, flashings and decoration. The section also includes a clean up operation and checking that the work conforms to company specifications. This is a sensible step prior to the external scaffold being removed; any fault detected after the scaffold has been removed becomes a difficult and expensive problem to rectify. As with the sections up to now this forms a logical stage in its own right even though it combines work form up to five different trades.

The section represents a major stage in the construction of the house, for the first time the new building is now substantially waterproof. This stage now opens the way for internal trades to commence and thus the need for information that relates to these internal trades needs to be gathered and passed on to the site management for incorporation into the house. This company has built into the scheme milestone event status for this section, once the section four sign off sheet goes into the office it will generate a reminder to sales to ensure that all internal choices for the plot if not already made are made and transmitted to site and the relevant trades.

10.2.5 Section Five

This is also a major section; it covers a large range of work and trades. The waterproofing of the house is completed and scaffolding been removed, with entrance and patio doors and windows fitted, low level porch and bay roofs completed. The internal walls are constructed with this company using timber studding, metal section partitioning or a combination of the two. This allows doorframe positions to be fixed and sub-frames or base linings to be fixed, pre-hung doorframes or door sets as they are called are fixed later in section seven. All window boards, pipe boxing and timber components that are needed to support the plasterboard covering or any fixture that is supported by the partition walls are part of this section of work.

The electrical work and plumbing work commence and installations completed up to what is called first fix stage. This stage covers what is called builders work, drilling of joists and studding and any chasing to block work walls for back boxes, basic wiring, fixing of back boxes for switches, sockets and any other electrical outlets, positioning of ceiling drops for lighting, boilers and showers and the establishment of domestic consumer unit positions. The plumbing first fix will consist of all hot and cold water piping and central heating piping that is to be concealed within the fabric of the house. Radiator positions are defined and pipes brought to the correct position, boiler positions set out and all the bathroom and kitchen services positioned.

The section also covers external renders where applicable and such as garage doors, garage roof coverings and flashings and cleaning down of the exterior of the building and clearing off the plot to ensure that safe access is available to following trades. The section concludes with snagging and inspection by site management checking that all work conforms to company specification, and a pre-plaster check by the local NHBC Inspector. This is one of the current NHBC key stage pre-determined inspections on new houses introduced in 1999. This inspection should identify any non-specification item that would in the normal course of events be hidden by the plasterboard finish and

could have produced problems later in the life of the house. Thus, potentially helping the NHBC to keep down the number of claims against the structural warranty.

The section is also a second company milestone event; the customer's options are checked at this point to ensure that any requirement has been included in the house and that half the set of keys are given to the sales department so that access to the house can be afforded to the purchaser outside normal site hours.

10.2.6 Section Six

Section six covers the actual plasterboard and skim or dry-lining of the house; it also includes loft insulation where necessary if not warm roof construction, external decoration and service connections to the house, gas, electric and water. There are some external works elements such as top soil to gardens, external screen and plot walls and any block paving. Again the work should be checked before signing off the section.

10.2.7 Section Seven

Section seven includes the domestic hot and cold water supply and fittings including all sanitary ware as well as the heating system including boiler and radiators. The joinery second fix now takes place including fixing door sets and associated architraves, skirting boards, mouldings, kitchens and any fitted wardrobes. The electrician fixes switch faceplates and outlets, ceiling drops/fittings and consumer service unit along with all associated earth bonding. Wall tiling is completed to kitchens and bathrooms as well as any shower rooms and toilets that require ceramic tiling. The fixing of all meters takes place in order to allow the testing of heating and electrical installations. The section includes all external works that can take place at this time such as fencing

and final finishing such as mastic to doors and windows and public footpaths to base course.

This is also the section where this company performs their largest formal quality assurance check on the house; it is also another milestone event in the system. The company produces a seven page detailed checklist that must be completed by a Quality Assurance Co-ordinator. The QA Co-ordinators work from the regional office and are independent of the site, in this way the company hopes that the inspection will be as accurate as possible and identify all non-specification and incomplete work. They do, however, conduct the inspections of the property with the relevant site or assistant site manager. Section seven is assessed against a company pro-forma checklist and given a score. The score achieved will not affect the site manager's completion bonus as this relies purely on achieving section seven completion. The region as a whole will be monitored against section seven inspection scores thus give senior management an incentive to ensure that the sites within their region achieves the highest score possible on all section seven inspections.

This checklist not only allows positive and negative responses, there are also sections for comments on each item to be checked. There is provision for comments at the bottom of each sheet and the final sheet of the set provides room for what are called miscellaneous concerns. The co-ordinator and the site manager will then sign the set of sheets, and they are sent into the office. Providing that there are no major items on this list, the sales department will act on this final milestone event and commence final completion procedures and give a completion date to the purchaser, normally three to four weeks after section seven is complete.

The areas covered on the section seven check lists are fairly straight forward, they look for completeness of installation, that things are installed and work as they should, that the plastering and any patching required are complete and to the company's standard,

in short, that all items that should be attended to prior to internal decoration are complete. This should ensure that the standard of the finished decorated house conforms to company standards. The decorator will be working in a completed house, all the walls and woodwork will be flat and smooth and the house will be cleaned for the decorator to work in.

10.2.8 Section Eight

Section eight looks at the decoration, any floor finishes and final fix items including appliance fitting and testing, final clean and building regulation final inspection by either Local Authority building control officer or the local NHBC inspector. Any final external works are covered in this section and then finally the keys and associated appliance literature are forwarded to the sales department ready for handover of the property to the customer. By the time the process gets to this section, there should be no major problems with the house, the preceding sections should have ensured that both customer and developer are satisfied with the standard of the house and the legal completion of the house can then progress smoothly.

10.2.9 Does The System Work In Practice?

On paper this system seems to embrace all the positive aspects of a good Quality Assurance scheme, there are positive stage inspections and signoffs. The stage inspections are not contrived in any way; they correspond with the normal build stages and represent good stages technically for inspections to take place. They trigger milestone events in the overall build process that ensure that information is available at the right time for options and choices to be incorporated into the house. There is an element of third party inspection, *"This is the crucial difference. Verification, or recording what you have done, is probably where QA departs from merely having standard procedures.* McCabe (1988), by the NHBC inspector at pre-plaster stage, the

QA co-ordinator at the completion of section seven and the NHBC/LA building control officer at completion stage, all very important key stages in the construction of the house. The next stage cannot in theory be commenced without the existing stage being signed off as complete to company standards.

So does this system work? This particular housebuilder scored five industry average scores and two below industry average scores in the 2000 HF/MORI poll in the seven categories used to determine customer satisfaction with the new house building industry. HF /MORI (2000) [in the last two polls this figure has progressively worsened, in 2001 the figure was three average and four below average; and in 2003 the figure was one average and six below.] This rating would suggest that the house builder's system is either not working or being applied incorrectly or that the HF/MORI poll did not reflect the true feelings of the respondents that lived in this house builder's homes. The HF/MORI poll produced results much in line with those that the researcher found in the much smaller and more localised preliminary questionnaire survey. From this it can be concluded that the HF/MORI poll produced, (subject to the limitations of any survey), as true a picture of customer satisfaction with the end product, of this house builder at the time as is possible. It can further be concluded that a substantial part of the reason for this apparent dissatisfaction with the house builder's end product must stem from the fact that as good as the QA system appears on paper, it is either not working as it should in practice or does not cover the areas that the customer thinks are important.

10.2.9.1 A Site Manager's View

Further evidence to support this conclusion comes from an informal interview with one of this company's site managers. His comments reflect the fact that seemingly little has changed from the time when the researcher was a site manager for a different national housebuilder, some twenty years ago. He reported that the sales dominated

culture still remained as the driving force, legal completions that should be triggered by build complete are in fact forcing incomplete houses to be reported as complete. Sales figures; and particularly end of financial year sales figures are a major ruling factor. Houses must be handed over regardless to meet these deadlines to meet the cash flow forecast made by the board to the shareholders and financial institutions. He reported houses being handed over without wall tiling to kitchens and bathrooms, houses where painters are still working on the handover day and many of the problems that customers had reported to the researcher in his survey work two years previous still occurring despite the QA system.

The fact that these recurrent complaints are still occurring shows that little has changed in terms of real quality improvement in new houses over the last twenty years since the researcher was involved in housebuilding. QA sections are being signed off as complete by middle and senior management in the office in order to reach their targets and release bonuses, not by site, thus triggering impractical and in some cases impossible build completion dates. Most housebuilders have strong contractual clauses that can enforce legal completion after a notice period. This often means that the customer thinking that the house will be ready on the day promised, arranges all his legal affairs for this day and books the removal and then finds on arrival, the house is not fully finished but has no where else to go.

10.2.9.2 The Quality Culture within the Company

This demonstrates the fact that the quality culture within the company is at best patchy. The quality culture may outwardly be in evidence at senior management level and to some greater or lesser extent at site management level but somewhere within the middle management structure of the company it is missing. The senior management have implemented and on the surface support the scheme, but in practice when it comes to completion figures and meeting cash flow forecasts they do not ensure that

the system is rigorously applied by middle management and thus in effect support the actions of the middle managers. The main problem of this lack of real support for the QA scheme at higher level; is that it spreads down the management chain. The site level managers begin to feel that no matter what they do to try to improve quality and finish houses completely prior to handover they are undermined by the events previously described. The site manager that was interviewed commented that no matter how committed he was to the scheme, he felt that when it was a question of completions to meet the sales and cash flow forecasts the company as a whole conveniently forgot about the QA system. He commented that he and many of his colleagues felt that if the scheme was not worth following to the letter and at all times then they had no respect for it and thus its implementation would be at best lip service, filling in the forms and going through the motions

This lack of respect for the scheme at all levels of management throughout the company is again a symptom of a lack of quality culture within the company. There seems to be a body of thought that any work not complete or to standard could be sorted out after completion, 'when the money was in the bank'. This demonstrates the gulf between not only what housebuilders want and think that their customers want and the reality of what their customers really do want, hence the level of dissatisfaction with the service from the builder that HF/MORI reported. HF/MORI report that 81% have snags on completion, 48% say that there are more snags than they thought that there would be, 39% were either very or fairly dissatisfied with the way the builder dealt with the snags.

10.2.10 Conceptual Model C

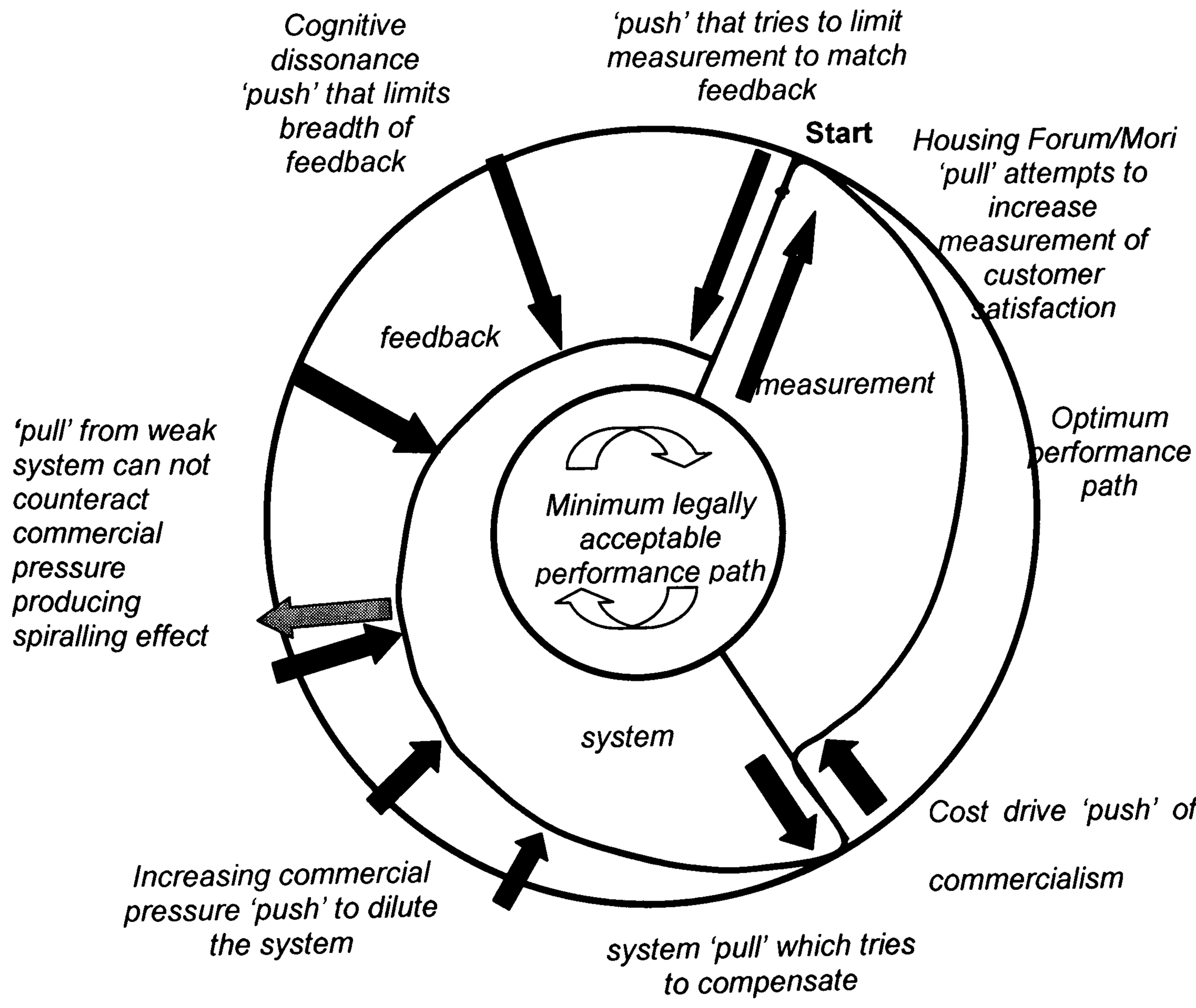
Based on the foregoing we can reproduce the system as conceptual model C shown overleaf. In this model the initial impetus is for the HF/MORI surveys to *'pull'* the housebuilding sector up from the minimum legal standards in an attempt meet the

requirements of their customers. There are economic pressures on the companies imposed by the accountants and shareholders to deliver cash flow estimates and meeting general commercial pressures that has the effect of deflecting it from its optimum path. The management systems and QA systems that are installed to counter this deflection do work initially but need constant input and support to work. This is often not present and in fact the increasing commercial pressures have as described previously the effect of overriding the QA system and further depressing the path.

The effects of such as the HF/MORI poll do not have sufficient strength to overcome the cognitive dissonance push in terms of feedback, 87% are satisfied with their new home so the system must be delivering what people want and yet less than 50% are satisfied with the soft issue service aspect.

Conceptual Model C

Typical Housebuilder Management Model – Affected by Cognitive Dissonance



The overall effect is a performance path that is at best changeable, above the minimum level of acceptability but never achieving the optimum levels for very long especially when commercial and other pressures are exerted on the system. Unchallenged and unchanged, the system becomes self-perpetuating and as the research has found, there is little to suggest that things have changed over the last decade.

10.3 A UK Commercial Perspective

As previously mentioned in the thesis, parts of the commercial sector are reported to have taken on board the concepts of quality enhancement and to a greater or lesser extent the basic essentials of TQM including customer satisfaction ratings. The companies, who have taken this path, claim to have benefited from it. This section looks at one company Mace, a large multi-discipline and multi-national project and construction management company and their efforts to improve quality by increasing their customer satisfaction levels based on an interview with Haroona Irshad in April 2002.

10.3.1 The Historical Background

The chief executive of Mace, Bob White the writer of the Mace internal quality handbook, their *Green Book,* had been asked to serve on the board of the post Egan Movement for Innovation (M4i) initiative. He was interested in ways that the company could improve their overall performance and saw best practise and benchmarking as a possible way to achieve this improvement. Whilst serving on the M4i board, White met Amanda Wain and asked her to join Mace to set up a Best Practice Programme within the company.

This scheme was in true Crosby terms a *'top down'* programme, the steering group being White as Chief Executive, his number two Steve Pyecroft Chief Operations

Officer, Head of Human Resources, Head of Business Development and of course Wain. This steering group was purposefully a senior executive group as the company needed to demonstrate not only to clients abut to the rest of the company that at board level this programme would be taken very seriously.

The aim was to improve the performance of the company, improve the quality of the end product, improve the levels of service given to customers and thus improve overall customer satisfaction. This meant that each and every department in Mace needed to be geared up to deliver this improvement and thus those in charge of all aspects of the company needed to be involved, *"The phrase 'take requirements so seriously' means that the executives who run marketing, finance, sales, manufacturing, engineering, regional offices, legal, public relations, quality, purchasing, information services and all the other functions have to recognise that if they are going to have quality improvement in their areas, everyone has to agree on what is going to have to be done and work to that end."* Crosby (1984)

This group met and decided that Mace although operating their own quality systems similar to those of the housing company described before, needed to measure their current state of performance. They wanted to know what was working within the organisation, what was not and what could be improved. This is an essential stage, to measure where a company is before taking steps in any direction, as Early, wrote in 1991: *"Quality improvement without measurement is like hunting ducks at midnight without a moon – lots of squawking and shooting with only random results and with a high probability of damage."* Early (1991) Early then went on to acknowledge that whilst the measurement of physical processes was relatively easy, the apparent difficulty with measuring the subjective area of service is not, due to a lack of established practice in the measurement of services. At the start of the process Mace realised that they had similar problems to those identified by Early. Mace had implemented the Department of Trade and Industry's Key Performance Indicators

(KPI's) in their construction projects; they also had monthly reports from projects detailing costs, productivity and progress. They had the *'hard issues'* data on how well the company was doing, what was missing was the *'soft issues'* data on how well their clients thought that the company was doing, how satisfied were they with the whole package, the service and the end product. These *'soft issues'* were the areas that Mace decided to investigate, to find out what their clients thought about the company and the service provide by the company, to devise and undertake a programme of Customer Satisfaction Measurement (CSM). The Mace board decided that once this was done they could then to go one step further and compare this customer satisfaction figure against the KPI's to see whether there was any correlation between high levels of customer satisfaction and profitability on projects.

10.3.2 The Emergence of the Mace Programme

The steering committee chose nine construction management projects that were already being monitored against the KPI's as the pilot scheme for the Mace Best Practice Programme. Haroona Irshad was approached and recruited by Wain with a view to conducting the customer satisfaction surveys; she had no links to the construction department and thus could be assumed to be fairly neutral. The initial questionnaire used for conducting the interviews had been devised by a member of staff who worked on one of the Mace/British Airports Authority (BAA) projects who had first hand experience of BAA best practice. Mace were part of the BAA framework agreement at the time of this section of research was being conducted, a partnering scheme that encouraged the partners to suggest innovative schemes that would deliver BAA's end requirements.

Representatives of the clients on all nine projects were interviewed in an effort to find out what the client's perception of Mace was, what were their expectations of Mace at the outset of the contract? Have Mace met these expectations? If not where did they fall short? And how could the project have been managed better from the client's point

of view? Frank discussions were held regarding service delivery, individual personnel who were particularly good and helpful, and those who were not so good. Mace's processes and systems, did they help in delivering the project on time and to cost or did they hinder the project etc. Five or six personnel were interviewed for approximately an hour at each of the clients to gain an overall view of the client's experiences, this it was hoped would counter any personal problems or agendas that the interviewees had about Mace or individual personnel at Mace. The DETR at the time were reporting that the industry average for customer satisfaction was 74% (Haroon 2002), out of the nine projects all but two scored on or above the industry average. It was subsequently found that these two projects were also below average on the KPI's, not only this, but the two below average projects were later found to be failing to meet their internal financial targets. The initial work did seem to show that there was a correlation between customer satisfaction and KPI's and profitability.

This work was done towards the end of 2000 and a presentation made to the board demonstrating that this research could indicate where Mace's strengths lay and how and where they needed to improve. The board decided that the programme was worthwhile and expanded it to cover all of the projects undertaken by the company; Irshad was asked to on this role of customer satisfaction measurement on a permanent basis. Obviously it is less complicated to introduce this type of programme at the beginning of a project, on an existing project any measurements taken may have already been skewed by personalities that have since gone, or minor historical details that have the effect of clouding issues, but never the less the decision was to implement it on all projects.

The concept of introducing this type of customer satisfaction measurement onto existing projects may at first seem questionable, but in the opinion of the author of this thesis was a good move. These existing projects may have several years to run until completion and thus Mace needed to know how they were performing on these

projects just as much as on the new projects. If the existing projects were producing low levels of customer satisfaction they needed to be addressed as soon as possible as this had the potential to damage Mace's reputation and jeopardise repeat work prospects. Introducing the new programme into the new projects would easier, as ground rules could be established form the start of the project and the system explained to both client and Mace personnel. One feature that was encountered on the existing projects was the fact that the project may have been running for two years and suddenly the client is presented with an opportunity to give feedback on the service given by Mace for the first time. In the main the opportunity to give feedback to the senior management of Mace was welcomed by the clients and proved to be a useful exercise to Mace.

10.3.3 The Customer Satisfaction Management Process

With the new projects, the visits are timetabled in conjunction with the Mace Group director responsible for the project. When the operational director confirms to Irshad that a project is ready for the interview to take place the project manager is then contacted. The project manager then contacts the client, he explains the purpose of the interview and seeks broad agreement from the client that they will take part, whilst all Mace projects are subject to the programme; agreement from the client to take part in the project is essential. If the client agrees to participate in the programme then the project manager contacts Irshad who takes over the liaison role from this point in time. Irshad then contacts the client and a mutually agreed appointment is made, this is confirmed either by letter or electronically. Mace feel that once this liaison role is established, it provides the client with an open avenue of contact to management at the senior level in the company regardless of how good or bad relationships are at site level. Mace are promoting Client Relationship Management, but in this case not as a marketing strategy, but as a real attempt to promote dialogue and to establish closer links between client and company.

10.3.3.1 The Client Interview

Two or three days prior to the client interview, Irshad will contact the project manager for an update on the project. Due to the detached nature of the Customer Satisfaction Management (CSM) section from the construction sections, prior to client interviews taking place certain questions need to be asked so that Irshad has a clear picture of the project. The type of questions are such as who are the key personnel? The consultants? What is the progress? There is also a brief discussion on the basic project details. This is meant to be a two-sided process; there are discussions with Mace project teams to get their views on how the team/client relationship is going and what if anything needs to be done to help make these relationships better. Irshad is then able to form an impression of how well the project is progressing from what is said and also from what is not said.

At the client interview Irshad will explain her role and the purpose of the interview again to the client and also tell them that there is a short questionnaire to complete at the end of the interview. As an 'icebreaker' the clients is asked what aspects of the project they would like to discuss, and from this open discussion Irshad is able to formulate some specific questions on key issues that have been identified. The areas that will be covered in the interview are the client's views on how focussed are the Mace team on the customer's business; the team's technical, managerial and communication skills; health and safety aspects; financial and quality control and overall project impressions. Other questions will have been formulated in discussions with the project manger and by combining the answers from two sets of questions and the questionnaire, it is hoped that a full picture of the level of customer satisfaction with the project will emerge.

10.3.3.2 Consultant Interviews

A similar, but not as in depth procedure is carried out with consultants, to check the project team's relationship with the client's design team. This aspect of mutual respect

and functioning as a team are, as the researcher knows from over twenty years industry experience is an essential part of any successful project. This information is then included in the analysis of the data obtained from the client interview and questionnaire to give a whole picture of the project.

10.3.3.3 The independence of the Process

Mace has clients from several categories, local government, developers and end users each one may have different perspectives on customer satisfaction and thus the approach used in CSM and the type of questions asked may vary slightly from client to client so as not to be biased towards any one category of client. The differences may only be slight, as major differences in style and content will jeopardise the consistency of results produced by the CSM programme. By virtue of Irshad's background, a non construction background having studied social sciences and law, she is able ask clients the sort of questions that construction related personnel would not consider asking and thus produce some important data on customer perceptions and attitudes. She is not seen as part of the project team and thus can ask the client questions regarding client/team interaction that a member of the team could not ask.

This system appears to give a high level of independence and impartiality even though undertaken by Mace itself, the personnel conducting the interviews and the analysis and report goes straight to the COO. The process and personnel involved are not part of or answerable to the construction management team at Mace; they work with but independently of this team. This direct line of access to the COO is one that can help to give clients a sense of participation and control over their own project. This independent line of communication with the client can be very useful in the event of relationships at project level breaking down, there is still a line of communications open and therefore the project level problems can be resolved and limiting the damage to the project.

10.3.4 CSM Results and Reports

The full results and report from this process are kept strictly at boardroom level; they are not used for external marketing purposes. Individual directors may at their discretion pass on parts of the report to the team concerned, Irshad sees it as being important that any feedback is of the positive type, even with serious problems. The effect of negative feedback maybe to alienate the process that highlighted the problem and render the whole process less effective. The report will contain as many direct quotes from clients and project team as possible, which will help to prevent too much interpretation of what has been said and try to ensure that the report is as true to what has been said as possible. Irshad as part of the analysis process; will formulate up to five recommendations from the all the data collected and embedded them into the report. These recommendations may highlight specific good working practices or innovative methods that can be disseminated across the company to help improve the company's overall success, as well as any criticisms of current or specific working practices.

Mace hope that the information gained in this process will result in the company being more responsive to their clients, which will in turn result in more repeat business from these clients. The more repeat business with clients, the better the working relationship should become with each client, and Mace have a feedback system to check that 'familiarity does not breed contempt' and that Mace personnel do not become complacent when working with multi-repeat clients and allow standards to slip. They claim to be committed to this programme and have extended the basic concept to relationships with consultants, subcontractors and suppliers.

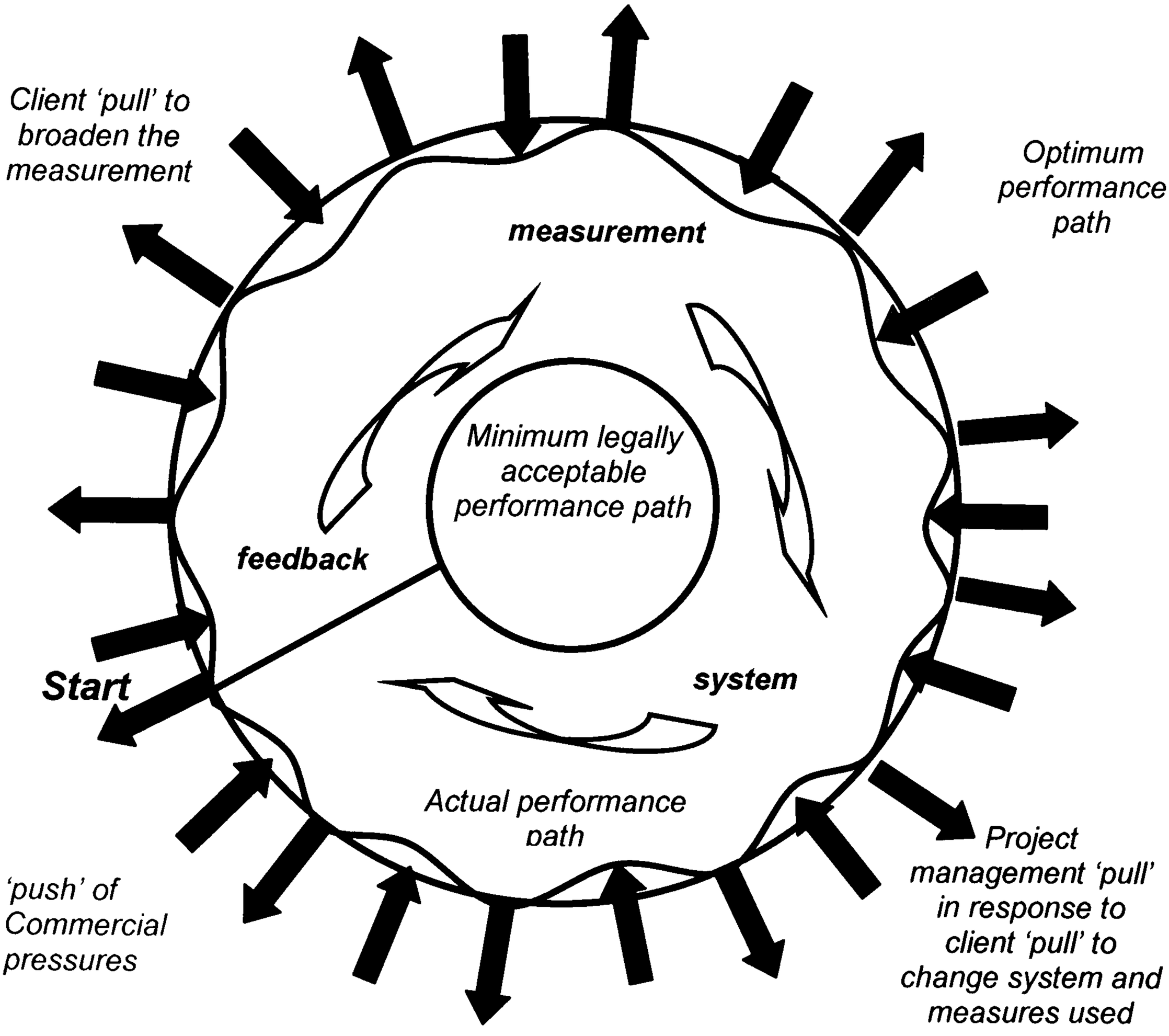
They are also committed to staff development and have a person specific training programme, each employee within the company has access to the staff training programme via their line manager. The programme is designed to help the individual identify their own specific training needs and help that individual to address the needs

themselves.

10.3.5 Conceptual Model D

The Mace system produces a new conceptual model D shown below; in this case the client 'pull' is a real factor in the system.

Conceptual Model D
Mace Management Model that addresses TQM values



The client 'pull' and project management 'pull' are working together to agreed targets, therefore, there is no possibility skewing of measurement of the actual quality achieved against the client's criteria caused by cognitive dissonance. This 'perfect' match of industry response matching client requirements has the effect of eliminating the Cognitive Dissonance (CD) gap. The combined 'pull' of the client and project management match and thus counteract the 'push' of commercial pressures and thus the actual performance path closely follows the actual performance path. This not only

happens from the inception of the project when the client brief identifies the initial customer requirements, but also during the project and through to completion, as there is a feedback mechanism that keeps a check on how the project and team are performing in respect to the client/customer's requirements. The feedback is now a major part of the process, no longer modified and diminished by cognitive dissonance as the client/customer's requirements are set out at the start of the contract and agreed by both parties.

The end result of a project using this model would be the delivery of a quality end product and that fully meets the client/customer's requirements.

The Mace process can be seen therefore as a TQM process, it meets all of the traditionally recognised TQM processes and also Crosby's quality requirements. It has authority as it stems form the most senior management, it has a robust management system 'pull' that is reinforced throughout the process, it has a client feedback system that is independent of the build process and the information from the feedback process is fed back into the management system and shared throughout the company to ensure that standards are not only maintained but where possible improved. The Mace system does seem to address the main tenet of TQM; in that it does see conformance to customer requirements in the projects that it manages as a core value.

This system is in stark contrast to the leading housebuilder and their QA system. This is a good logically devised system, with a series of checks and balances that seeks to deliver the client's requirements on a consistent basis. It has been fully funded, implemented and is constantly monitored. It has the boardroom commitment to ensure that deviation from the system at any level of management is unacceptable. It has a genuine feedback loop that can influence the management system, ensuring that the main tenet of TQM of conformance to customer requirements is accepted as a core value throughout the company.

10.4 Summary

These two case studies have demonstrated that both sectors of the construction industry are aware of the concept of quality. Both sectors know that there are mechanism/systems available, and that if employed will deliver high levels of customer satisfaction.

The case studies show that Mace is committed from the boardroom level down through the company. Mace acknowledges the importance of, and actively seeks customer feedback to ensure that they are achieving their customer's requirements on a consistent basis. By so doing, Mace ensures that the project runs smoothly and when finished is handed over without problems and with good customer relations intact. They have also shown that this approach cost no more than the previous way of managing their projects, in fact they now say that the level of customer satisfaction on a project is often indicative of a project that is performing well financially.

On the other hand we have the major UK house builder, knows about quality and customer satisfaction so has a QA system. The QA system if policed well would produce a reasonably good standard of house; however the commercial pressures of year-end completion figures, coupled with the lack of customer feedback and near monopoly for the location scenario all help to defeat their QA system. The result is as shown in both the HF/MORI survey and the Large Scale Survey conducted in this research, a low level of customer satisfaction compared to what can and is being achieved in the commercial sector of the industry. It also leaves them with high cost of remedial works to completed properties, reducing their profit margins.

The next chapter looks in depth at an American housebuilding company that has their own form of quality management system that is similar to TQM. The system takes QA

and mixes it with TQM, in effect combining both the UK private housebuilding company and Mace systems and producing a system that works and once up and running incurs no additional expense.

CHAPTER 11 - AN AMERICAN APPROACH

11.1 Introduction

This chapter details the third case study, an American housebuilder that was consistently achieving high levels of customer satisfaction. During the course of this research into quality in new housing it came to the attention of the author of this thesis through Malcolm Pitcher in his regular monthly contribution to Building Homes, that a company based in Carmel Indiana USA and winner of the (USA) 1998 National Housing Quality Award, was reported to be achieving a customer satisfaction rating of 97%. The company was Estridge Homes, a regional housebuilder and member of the Builders Association of Greater Indianapolis (BAGI). The figure of 97% was much higher than any being achieved here in the UK according to the HF/MORI 2000, 2001 and 2003 surveys and seemed to be very high. If the figure was in fact true, then it warranted closer inspection to see how it was being achieved.

Initial contact was made through the Internet web page of Estridge Homes, and then followed on by e-mail correspondence with Ron Diehm, Director of Communications. The reason for the author of this thesis contacting Estridge was discussed over the e-mail and Diehm agreed to send details of the way Estridge manage the housebuilding/selling process from start to finish. Several weeks later a large package arrived on the author of this thesis' desk from Indiana containing details of their *'HomeLife'* warranty package, a copy of the BAGI Standards, a *'HomeLife'* video made for the customer and various other documents. The literature and video supplied by Estridge indicated that the Estridge system whilst not a true Total Quality Management (TQM) system, followed the main principle of delivering an agreed set of standards and meeting customer requirements. The Estridge philosophy seemed to differ in terms of company focus from UK housebuilders, at Estridge there seemed to be a genuine customer based focus, what is more the whole process of buying an Estridge Home

seemed to be a totally transparent transaction in terms of what the customer could expect at each stage in the process. Estridge appeared to have a robust management system that controlled the entire process and by involving the customer at an early stage in a partnership, share the responsibility for the construction of a defect free new home. The system also highlighted the importance of the way in which the customer uses and the need for the customer to maintain their new home in order that their new home continues to be defect free. This in the researcher's experience is not an approach currently used in the UK private housebuilding industry.

11.2 The Estridge System and Process

On deciding to purchase an Estridge Home, the customer is given a copy of their booklet *Moving Ahead*, this explains in great detail the process from initial purchase through to completion or what the Americans call *'closing'.* Customers are encouraged to become part of the housebuilding process; they are invited to attend several meetings during the process and at all times have a person who is responsible for the purchase and construction of their home who will liase with them. Estridge promise that the customer's contact will call them once a week to inform them of progress and return their calls before the end of the following working day. Their involvement in the house building process begins almost immediately with a series of organised meetings.

11.2.1 HomeOwner Orientation Meeting

Normally the first of the meetings is the *'HomeOwner Orientation Meeting'*, which is held at the company offices in order to inform the customer both about the housebuilding process and Estridge way of doing things. They are also given a copy of

the BAGI Standards[1], which details the minimum standard that the customer can expect in their completed home. This meeting may not always be the first meeting depending on timings of scheduled meetings, in some cases this *HomeOwner Orientation Meeting* may follow the colour selection or plan review meetings. The second meeting is the *'Color Selections Meeting'* with the sales advisor, this meeting can only take place once the customer has secured a mortgage on the property.

11.2.2 Plan Review Meeting

The third meeting is the *'Plan Review Meeting'* and must take place before the construction of the house can commence. This third meeting is according to the booklet *"a critical and pivotal stage in the home construction process"* (Estridge Homes undated); it introduces the customer to the builder, the manager who will be responsible for the construction of their house and their point of contact up until the house in finished. It also represents the final point at which changes can be made to layout, colours, fixtures e tc. The customer is provided with regular updates on the progress of their home, completion dates it is stressed are only a guide until later in the build process due to possible delays arising from inclement weather and labour and material difficulties.

11.2.3 Pre-drywall Meeting

The fourth meeting takes place on the construction site in the partially completed house and is called the *'Pre-drywall Meeting'*. At this stage all the structural components are fixed, the house is roofed, the windows and external doors fixed and all plumbing, heating, ventilation and electrical services installed prior to the dry-wall (plasterboard) being fixed to the structure and finishing work commencing. At this meeting the

[1] The BAGI Standards are a set of standards formulated by the Builders Association of Greater Indianapolis, and each of the members of the association agrees to build their houses to meet these standards as a minimum.

customer is given the opportunity to see how the house is constructed, where pipes and wires run, which are the structural and walls and which are partition walls, what will require maintenance work and ask any questions they have about the construction of their house. They also have the opportunity to discuss the progress of the construction of their house and have the anticipated completion date confirmed now that the process is less weather dependant.

11.2.4 HomeLife Orientation Meeting

Once the finishings stage is complete and the carpets are fitted, the builder contacts the *'HomeLife*[2]*'* centre and the customer's fifth meeting is scheduled. This is the *'HomeLife Orientation Meeting'*, and takes place at the company's offices. In order to activate the additional two years and turn the standard one-year warranty into a three-year *'HomeLife'* warranty the customer must attend this meeting. The *'HomeLife'* manual and video given to each couple tells them about the scope of the warranty and basic maintenance required for the trouble free use of their home. At the end of the meeting the company gives them a choice of useful household gift as an added bonus for attending.

11.2.5 Home Presentation

The sixth meeting is the *'Home Presentation'*, at this meeting the *'HomeLife'* inspector will walk the customer through the home explaining all the features and functions of the new home and invite the customer to note any problems that they see during the walk through. A final meeting called a *'Re-walk'* is scheduled for approximately a week later on the day of the *'closing'* to check that all of the major items have been rectified. Estridge do state in the booklet that if some items are incomplete, it will not affect the

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[2] *'HomeLife' is a division of Estridge Homes, but separate to the construction division and they undertake the QA inspections on all Estridge homes.*

closing date on the property. At *'closing'* the *'HomeLife'* six-month warranty inspection is scheduled along with the legal completion. The company then tells the new home owner that they will be contacted by an independent consulting and research firm after a period of 45-60 days and asked about their home buying and owning experience as part of a customer satisfaction feedback system.

11.2.6 BAGI Standards

The system appeared to be fairly comprehensive, the customer knows before they are asked to attend the *Home Presentation* (snagging) meeting what minimum standards they can expect to find in their new home as they a have previously been given a copy of the BAGI Standards. The BAGI Standards are in the opinion of the author of this thesis, an easy to follow and comprehend set of standards that are sectionalised for convenient reference. For each section, twenty-two in total, there is a general introduction and then it deals with specific problems, starting with stating the problem, defining the standard and then outlining the builder's responsibility and finally a discussion about the problem. Thus the customer knows exactly what he/she is entitled to from the builder unlike the situation customers have with the UK warranties provided by the two warranty providers.

The following shows the format and examples of two of the BAGI standards.

SECTION 5: WOOD FRAMING
CARPENTRY
Wood Floors

5.1 ***Observation:*** *Wood subfloors are uneven*
Standard: *Subfloor should not be more than ¼ inch off level within any 32 inch span and not exceed ½ inch off level within any 20 foot span. Allowable floor and ceiling joist deflections are governed by local building codes.*
Builder's Responsibility: *The builder shall meet the standard.*

Discussion: *The builder has many options to bring the floor into acceptable tolerances at either initial or finished carpentry stage.*

SECTION 12: DRYWALL AND PLASTER FINISHES
DRYWALL AND PLASTER FINISHES

12.2 ***Observation:*** *Nail pops, blisters, cracked corner beads, excess joint compound, trowel marks and other blemishes are visible on finished wall or ceiling.*
Standard: *Defects which can be readily observed by visual inspection from a distance of 6 feet under normal lighting conditions should be corrected.*
Builder's Responsibility: *The builder will repair such blemishes only once during the service period. The builder will touch up the paint in the area with original color if the builder was responsible for the original interior painting. A perfect match between original paint and new paint cannot be expected, and the builder is not required to paint an entire wall or room. The builder is not required to repair defects that are covered by wallpaper.*
Discussion: *Refer to paragraph 4 in the Background (page 71) for the definition of normal lighting conditions. (Normal lighting conditions are defined by indirect sunlight or medium artificial light. High intensity lighting, direct sun light, or artificial lighting aimed directly on an area is not considered within the definition of normal lighting.)*

BAGI (1999)

When the customer has their walk through at the *'Home Presentation'* meeting, they know what standards they can expect to find in the house and whether finishes etc meet the standard promised by Estridge. It could be argued that this is not strictly *customer's requirements* as in TQM, however it is a start, the customer does have these standards all through the process and certainly prior to *'closing'*, thus by *'closing'* the purchase the customer could be deemed to have agreed to these standards as a minimum to be expected

The video and manual that the customers are given at the *'HomeLife Orientation Meeting'* is in the opinion of the researcher both informative and instructive, they set out in fairly simple terms what levels of performance customers can expect from their new home and what minor adjustments they will have to make in the first six months occupation of their new home. If the new house were a car, the video and *'HomeLife'* Manual could be described as the old fashioned *running in* instructions, what to do and what not to do, maintenance items that are the responsibility of the customer are clearly set out, a maintenance schedule is provided listing items and whether they need monthly, quarterly semi-annually or annually inspection and work.

An abstract of two of the sections is set out overleaf.

FOUNDATION, CONCRETE SLABS, WALLS AND DRIVES

Concrete by its very nature, develops cracks over time. Even reinforced concrete floors, aprons, patios, steps, walks, driveways and porch slabs often develop cracks with age. This condition is normal and can be expected despite all precautions taken during construction.
Cracks in concrete can be repaired. Simply choose an appropriate caulk or Portland cement bond material that will adhere to concrete and regrout or seal obvious cracks

EXTERIOR FINISHES
Because wood is a product of nature, mitres, end butted joints and other joined details will, in time, develop separation due to the nature of wood shrinkage. This is normal during the periods of change in temperature and seasons and especially changing moisture conditions. After a full season, most of these occurrences should begin to minimize. Inspect the caulking around doors, windows, skylights and trim once a year. If a space develops at joints, corners or ends, you should apply outdoor grade paintable caulking to correct the situation and touch-up with paint or stain as necessary. Use only quality caulking products which are specifically recommended for the materials being caulked.

Estridge (undated)

The extent that the feedback played in the system was unclear at this time, but there was an attempt to measure the level of customer satisfaction that Estridge achieved with its customers, whether 97% was a true figure was at this time in the balance.

11.3 Estridge Homes and Impression Management

The author of this thesis suggests that in order to achieve these reportedly high levels of customer satisfaction, Estridge Homes is in fact implementing a Client Relationship Management programme using a combination of TQM techniques and Impression Management techniques. By totally involving the customer *(subject)* in the process, Estridge is taking on the role of *actor* and using impression management techniques in order to take control of the process. Both the *actor* Estridge and *subject* customer are thus aware of what to provide and expect respectively throughout the process of building and buying houses and that the customer accepts the *actors'* (Estridge) imposed standards of behaviour and quality to be achieved. This acceptance by the subject of the actors' standards is in accordance with Hovland et al (1953) and French and Raven (1959) findings regarding subjects being willing to abdicate responsibility for decisions to an authoritative figure. It is thus important for the housebuilder to establish

this authority at an early stage in the process.

Estridge establish their standards and roles and responsibilities, they then confidently and authoritatively present them to their customers, achieving the basic requirement in impression management. Their customers are then in full possession of a set of standards that will mould/limit their expectations of their new home and at the same time have criteria by which to judge the finished house against in terms of quality. This reduces the problem of all their different customers having different perceptions of what to expect from their new house and gives Estridge a better chance of providing a uniform standard of house. It also reduces the likelihood of cognitive dissonance occurring due to the fact that customers know what to expect and Estridge have a system that tries hard to achieve the agreed levels.

The added bonus of there being little likelihood of cognitive dissonance means that the measurement/feedback side of the equation is now more accurate. Without cognitive dissonance, (caused due to customers' unreal perceptions of quality, they do not know what to expect and so they make personal assumptions and actual quality achieved by the builder) causing attitude changes, the results of customer satisfaction feedback and thus quality have the potential to be more accurate, reflecting customers actual thoughts and feelings based on known criteria.

11.4 The Visit with Estridge Homes

This then is the background to the visit made by the author of this thesis to Estridge Homes in March 2002. The RICS Foundation very kindly provided a travel grant that enabled the visit to take place, and Estridge homes through Ron Diehm very kindly agreed to give the author of this thesis unrestricted access to all departments within their company. Diehm suggested, based on the already-scheduled meetings with customers, that in order for the author of this thesis to gain the maximum from the visit,

it should be scheduled to coincide with these meetings. This would enable the author of this thesis to sit in on and observe two scheduled meetings, a *HomeOwner Orientation* meeting and a *'HomeLife' Orientation* meeting. Diehm put together a very comprehensive schedule of meetings and visits that covered the whole five days that the author of this thesis spent with Estridge Homes. During this week the author of this thesis had meetings with all key senior and junior personnel within the company, including the Chief Executive Officer Paul Estridge and the Chief Operations Officer Ron Benkert.

The author of this thesis tried to embark on this visit without preconceptions of Estridge, the documentation provided by Deihm did indicate that Estridge were committed to achieving a high level of customer satisfaction. However, documentation can say and promise many things, companies can have CEOs that preach quality and customer satisfaction, but unless this is carried through the company with the same amount of resources and zeal it will not be achieved. In Crosby's words, *"Quality will never cease to be a major problem until management believes that here is absolutely no reason that we should ever deliver a noncomforming product or service to our customers."* Crosby (1984) This is the sort of commitment that the author of this thesis was looking for during the visit with Estridge Homes, a company that was prepared to commit itself form the very top and all the way through the company to achieving high levels of customer satisfaction. A company that was prepared to remain firm to its standards even when it would cost them money in the short term, a company that was prepared to invest in their system and people to ensure that in the long term they will produce the standards that they want as a matter of course. The text will not follow the visit in strict chronological order, as scheduled meetings and discussions took place out of build sequence. Instead it will look at the process through Crosby's theme of a *top down* audit trail, starting with the senior management and working down.

11.4.1 Senior Management Meetings

11.4.1.1 Chief Executive Officer and Chief Operations Officer

During the discussions with the owner and Chief Executive Officer Paul Estridge and Chief Operations Officer Ron Benkert, the author of this thesis did find the sort of commitment at senior level that would be expected in a company that aspires to this high level of customer satisfaction. They both conceded however, that Estridge was not necessarily typical of all US house builders; they consider Estridge to be typical of the top 10%. Paul Estridge's philosophy was that it was his name on the company and he wanted it to be associated with high quality and high levels of customer satisfaction. They both have strong Christian ethics, as demonstrated by the company mission statement a copy of which is reproduced below.

"Leading the Way"

Daring to walk in the past, whilst soaring into the future.

The Estridge Group is not only a group of people but also a group of beliefs. The cornerstone of these beliefs may be unconventional to most companies. Quite simply, old fashioned down to earth values like the "Golden Rule".

"Do unto others as you would have done onto you"

typifies our sincerity. Building Homes like those we would build for our own family, we fearlessly adhere to these convictions allowing everyone to profit.

We realise that we are not perfect. This understanding combined with our beliefs and commitment, will allow us to lead the way. Always knowing…

There is no finish line.

Estridge Group (undated)

They claimed that the Estridge group of companies will not employ anyone who is not committed to this ethic and mission statement, Estridge wants the people that work for the company to use the criteria *'would you sell this to your mom'.* They both see this type of ethical commitment as: *'making good business sense'*, word of mouth recommendations and satisfied customers are good business in an industry where repeat sales are common. They both impressed the author of this thesis with their

commitment to producing quality homes for what they call *'totally enthused customers'*, resulting in a correspondingly high level of customer satisfaction and thus quality. That was the first question answered, the impetus does come right from the top in this company, but does the same enthusiasm and commitment continue right through the company, the rest of the interviews and discussions would determine that.

11.4.1.2 Executive Vice President - Construction

The author of this thesis had a meeting with Charlie Scott, Executive Vice President in charge of Operations; meaning that all of the construction process falls into his domain. Scott also believes in producing a quality house, this ensures that their customers give Estridge a high customer satisfaction rating. He believes in *'feedback'* as an essential tool in ensuring that a company is achieving what it has set out to do. Estridge do not just rely on internal verification that they are achieving their goals, they employ consultants to third party verify customer satisfaction ratings. One consultant that Estridge uses on a regular basis and whose findings have a major effect on their company is Woodland, O'Brien & Associates of Minnesota. Woodland, O'Brien conduct customer satisfaction surveys for Estridge at 3 months and 12 months after closing. The results go from Woodland, O'Brien straight to Scott and are discussed at board level, Estridge have nothing to do with the collection or analysis of this data, in the hope that this will enable customers to give frank and honest feedback on their home buying and owning experience with Estridge. The individual results are not published within the company; the board decides what information is to be cascaded down through the company. The results are taken very seriously and where necessary immediate action is taken. Estridge themselves also conduct surveys on all their activities, questionnaires are handed out regarding the customers satisfaction with the home buying process at the Homeowner Orientation meeting. Customers are asked about the process to date and about the usefulness and relevance of the meeting; they also do a follow on survey at closing, giving an instant picture of that customer'

experiences. The two sets of data can then be compared with the Woodland O'Brien results later on to produce a full picture of each customer's experiences.

Estridge also employ other outside consultants to fine tune their system, their aim is to keep Estridge ahead of the competition. This aspect is perhaps more essential in the US housing market, due to the fact that housebuilding companies often have developments on adjacent fields and are actively in competition with each other for the same customers. This use of consultants has according to Scott has uncovered many interesting facts, such as the fact that 77% of people in the US may choose to purchase goods and services from companies that have demonstrated social awareness. They were at the time of the visit building a house that will be auctioned for charity, all those involved building it were providing materials or labour at subsidised reduced rates and the auction is expected to raise $50 – 70,000 for the children's hospital in Indianapolis. This social awareness is central to the Estridge Mission Statement and the company seems to be determined to live up to their mission statement.

11.4.1.3 Executive Vice President – Sales

The meeting with Randy McNutt, Executive Vice President in charge of sales took place out at the Centennial community at Westfield, where the afternoon was spent looking at the various different model homes showing the types available on this development. McNutt explained that the Estridge concept is that if you wanted you could buy a bed, washer and dryer and move into you new Estridge house and live quite comfortably. The houses are fully finished with carpets and vinyl floors, cookers, fridges, wardrobes (a room cannot be called a bedroom without a fitted wardrobe in Indiana), blinds, light fittings, turfed front gardens with some planting and seeded rear yards (gardens). This can make them dearer than their competitors for the same floor area homes, but the customers realise that the extras are good value and sales do not

seem to be suffering as a result. McNutt was keen to emphasis that apart from contract quality carpets in model homes (show homes) to cope with the larger volume of foot traffic, the standard of finish in the customer's own finished home would be as good if not better than in the model home. This means that the customer has an example of the Estridge standard and what they could expect in their finished home if they bought an Estridge home.

11.4.1.4 Summary

The impression that is given by all senior management at Estridge is that they are committed to customer care and satisfaction, not only that, but they are sufficiently committed that they ensure that the same level of commitment is demonstrated at all levels throughout the company and empower employees accordingly. An example of Crosby's concept that *"The credibility of the commitment is the biggest single problem for management: it has to be reinforced all the time. Management has to continually show it is in for the long haul – forever. It is not enough to say the right sounding words: everyone does that. The actions and lifestyle have to be visible."* Crosby (1984) Estridge senior management do give this visible commitment to customer satisfaction and thus quality, and insist that it is obvious at all areas of interface with their customers.

11.4.2. Middle Management

11.4.2.1 Vice President in charge of Operations

This level of management in Estridge covers from Executive Vice President down to those who have responsibility of departments or groups of other employees. Steve Ranshaw, Vice President in charge of Operations, basically in UK terms Senior Contracts Manager, is responsible for the construction work on all the developments

and ensuring that the houses are built to Estridge standard and within budget. The conversation revolved around the management of quality on site and in particular the involvement of City and State inspections, State in this case being the State of Indiana. Local Code inspections (building regulations in UK) are conducted either by the City or municipal authority, which if it is too small to employ their own inspectors can pass this task over to the State inspection service. Local Code inspections cover foundations; the structural framing once complete, electrical, mechanical, heating and ventilation installations and the final habitation certificate without which there can be no closing on the property. Unlike the UK warranty providers, the Residential Warranty Company (RWC) who provide the structural warranty do not inspect, they rely on the fact that the City or State has inspected the structural items. If a company has a bad claims record with the warranty company they may decide to employ inspectors and then inspect the builder with the poor record, charging the builder accordingly. The other standards that they work to are the BAGI standards, again no inspection regime, but if problems begin to occur which are not dealt with by the builder, BAGI will investigate and make a ruling. As in the UK the structural warranty is essential if the customer wants to obtain a mortgage to purchase the house. Actual quality control is the province of the builder (Site Manager), who is expected to manage up to twenty-two houses in construction at any time with the help of an assistant. The actual levels of quality achieved in the house are checked by the *'HomeLife'* Inspectors who are an independent section and not under the control of Ranshaw.

The Estridge system therefore has several independent checks, from the City or State at different times throughout the construction process. The Local Code inspections are milestone events, without inspection and subsequent endorsement by the inspector work cannot proceed on to the next stage of construction. Ranshaw and Estridge are not content to leave this inspection regime to the State, City and *'HomeLife'* inspectors, the construction department have introduced a comprehensive inspection regime of their own. They are to some extent mirroring the state inspection regime, their own

'HomeLife' inspections making similar key stage inspections to ensure that when the Local Code inspections are performed little or non non-conformances to the required Standards are found. Ranshaw is committed to this aspect of the process, the less problems that are found during the process and at closing mean the less problems that his site managers have to solve and thus they can be more proactive in the management process rather than reactive.

11.4.2.3 Communications Director

The author of this thesis spent the first the first hour and a half on the Monday morning with Ron Diehm in the *Command Centre*, Diehm in his capacity of Communications Director has specific responsibility for the office and administrative side of the *'HomeLife'* warranty. It is the *Command Centre* that customers contact to report that they have encountered problems with their new home and to have the problem dealt with. As with most new house builders, Monday morning was a particularly busy time, however, it became obvious fairly quickly, that at Estridge personnel at this level do take the three-year *'HomeLife'* warranty very seriously.

Estridge have a computerised database that holds details of all their properties and contains a full history of each property including owner details, calls and actions, this database is accessible by the person taking the telephone call. The specific address entry is accessed, and the person taking the call is then able to refer to the caller by both first name and surname giving a personal dimension to their dealings with the customer. This database holds all the records of previous problems on what is called Customer Service Variances (CSV). Each CSV is dated and has action sections. Estridge has developed this system whereby they can give the customer the name of who will call to see them and a date and time. This is to some extent governed by the availability of personnel, but they will contact either their personnel by radio during the telephone call or their subcontractors by a second telephone line to confirm the

appointment. This gives the customer an instant response to their problem and reinforces the caring approach that Estridge are keen to foster. The CSVs are then faxed to the site if the customer is on a current development, to be picked up by the relevant person or to the nearest development to where the customer lives if their development is completed. Each CSV has a portion for the customer to sign confirming that the problem has been rectified to their satisfaction, enabling the system to be audited. The database will where necessarily also generate an order so that the work needed can be undertaken, this does not always indicate that payment is authorised for the work contained on the CSV.

The Estridge staff also happily discussed problems that had arisen with customers and gave advice even where the problem was not covered under their warranty. Estridge will also do work in certain circumstances where it is not strictly covered by the warranty. An example of this was where 65mph winds damaged the roof coverings on 45 properties. This scale of wind speed causing damage does not normally fall within the scope of the warranty; it is in fact covered by the purchaser's own home insurance policy. Estridge took the decision to instruct their subcontractors to do immediate remedial work on these roofs, and they paid their subcontractors for replacing asphalt shingles (fibre glass and bitumen felt type shingles) that had blown off in the storm. This decision cost Estridge $6000.00, it was made partly on a goodwill basis but also partly due to valid technical reasons. The shingles used on the roof have a self-adhesive layer on the back where they lap onto the lower shingle to ensure that the lap is weather proof. This requires sunlight/warmth to heat the shingles, soften the adhesive and mould each shingle to the one below and allow the adhesive to bond the shingles together. These roofs had been completed during the winter period and thus they had not had the level of heat required to ensure that they had bedded down and adhered to other another. Estridge considered this gesture to be not only good public relations and well worth the cost, but also completely in line with the Estridge Group Company Mission Statement:

11.4.2.4 Company Accountant

The researcher also had meetings with Paul Hayes the company accountant and Tom Shurig the human resources manager. The main reason for talking to Hayes was to find out if the process of trying to achieve this high level of customer satisfaction and thus quality was in fact costing Estridge money. Hayes was open about the Estridge accounting system, it is a sophisticated system and capable of producing very detailed cost breakdowns. Hayes can see from these breakdowns that the costs involved in re-work (snagging) have decreased which he said indicates that the level of defects has also decreased. Hayes then went on to say that this potential saving was currently being absorbed by the cost of implementing the warranty. He predicted that as the inspection regime improves, and the amount of re-work will reduce further and eventually be eliminated. The inspections will be quicker to conduct and thus cost less and thus Hayes feels that warranty will eventually become self-funding. Hayes then commented that this would give Estridge a competitive edge over other house builders as well as them being able to give their customers the consistently high levels of satisfaction that they have come to expect.

11.4.2.5 Human Resources Manager

The discussions with Shurig centred on the recruitment and retention of the calibre of staff needed to achieve the Estridge mission statement. Estridge have close links with Purdue University, where students on construction degree courses have to complete 800 hours of work in the industry as part of their course before they can graduate. This gives Estridge an opportunity to evaluate undergraduates in the work place, assess their abilities and if they are suitable offer them employment on graduation. Shurig said that the company tries to foster a general feeling of well being within the company; it rewards effort and achievement publicly. They have an employee-training scheme

whereby all employees can receive financial help towards the cost of courses that will broaden their employees' general level of education; the courses do not have to be construction related courses. Estridge believe that they must look after their employees; Shurig commented that the employees are the public face of the company. They are the ones that have to deliver the company mission statement. He went on to say that without the right sort of people Estridge would not be able to achieve their goals and that senior management are aware of this fact and act accordingly.

11.2.4.6 HomeLife Director

The author of this thesis also met with Jeff Ford the *'HomeLife'* Director, he manages the onsite implementation of the warranty, the inspection regime and any subsequent remedial work needed. Ford trained and worked as an inspector for one of the large warranty companies before coming to Estridge, and thus has experience in both inspection regimes and also the technical side of warranty work. Ford therefore knows what to look for when inspecting houses and has trained the other three inspectors in a similar way. They inspect the work in progress at pre-drywall stage and then before the client does his inspection. They are acting as independent inspectors, in a similar way as one who had been employed by their customers would. They work on the basis that non-conformances to Estridge standards are unacceptable, no matter how unpopular that makes them with the builders, they are committed to the Crosby '*zero defect*' concept and have the backing of Ford, Scott and the rest of the senior management. If an inspector thinks that there are too many non-conformances for a house to go to closing by the end of the week, it will be postponed. They do, however try to work as closely with the builders as possible, this is not a confrontational inspection regime but strict levels of compliance are expected and imposed.

11.2.4.7 Summary

This was the extent of meetings with the senior and middle management at Estridge. In the opinion of the author of this thesis, there was clear evidence of the senior and middle management's commitment to the goal of achieving high levels of customer satisfaction and thus quality in their new homes. The meetings confirmed that Estridge senior and middle management were according to Crosby (1984) *"in for the long haul"* and displaying actions and lifestyle that are visible to both customers and employees. This is an essential part of any quality management process and demonstrates commitment to both achieving and sustaining a high level of customer satisfaction. It is perhaps worth noting that the US perception of high levels of customer satisfaction being *'good business sense'* is promoted by the fact that there is real competition in their housing market.

With the vast amounts of land to be developed, it is common as the author of this thesis found to have a situation of a crossroads where there are four major developers each with sites at the four corners of the crossroad competing with each other for the same customers. The US housing market is fairly buoyant and there are customers for all the developments, but the successful ones sell first thus maximising the housebuilders profits. This is not strictly mirrored here in the UK, with developments being smaller and spread there may be no competition within twenty miles for the housebuilder, and thus if people want new private houses in this location he has a monopoly market.

11.4.3 The House Builders

During the visit the researcher had the opportunity to talk to some of the Estridge site managers or Estridge in terms *'builders'*, in many ways the UK term site manager represents their job function much better that the term builder. The housebuilding system is one of subcontract packages let out to companies or again in Estridge terms *'vendors'*. The site managers do just that function, they manage the vendors and liase

with clients, what could be termed a true management function. The managers that the author of this thesis spoke to clearly felt that working for Estridge as opposed to other builders was a plus, they all commented that Estridge support their employees and helped them to develop to their maximum potential. As a consequence, they all worked hard for the company and tried to produce houses with as few non-conformances to Estridge standards as possible. There was almost an unofficial site manager league table between them for having the least number of items on a *'HomeLife'* warranty inspection.

11.4.3.1 Vendor Council

This level of support and development extends to the actual vendors; Estridge has chosen what we would call partnering rather than the traditional procurement method of lowest tender for their vendors. This means at Estridge that the vendors are involved in the process from the start. Estridge has set up what they call the Vendor Council. Twelve of their vendors meet on a monthly basis at the Estridge office with senior Estridge staff to discuss problems and how to make the housebuilding process better. The author of this thesis was fortunate to be invited to observe one of these meetings. The agenda is controlled by the council members and cannot be dictated by Estridge, the chairperson is a vendor principle, (CEO of one of the subcontract companies) who controls the actual meeting.

The aspect of this meeting that remained with the author of this thesis long after the meeting had finished was the fact that there was no adversarial atmosphere in the meeting. All who attended had done so on a voluntary basis, many of whom were very busy people and whose time was very expensive, they seemed to be as committed to the success of Estridge as Estridge were themselves. The hour-long meeting followed the set agenda, discussing revised job specifications. Estridge let out subcontract packages with what they call *'job scopes'*, this spells out the requirements of the

contract in terms of materials, workmanship and finish. The current discussions revolved around the fact that the revised *'HomeLife'* inspections regime seemed to require higher standards than the job scopes. This aspect was currently being addressed by Estridge and it was reported to the meeting that the new job scopes were in the process of being double checked against the new inspection format to ensure complete compatibility of the two.

An aspect of this council that demonstrates the Estridge commitment to their vendors was the request made by Ranshaw to the council for vendors to look at the sets of drawings that they had for the different house types and do some value engineering, not to reduce costs to Estridge necessarily, but to make things easier for themselves. The vendors were quite happy to take on this task as they felt that some of the ways things had been done up to then were not the most efficient and they welcomed the opportunity to have an input into the design of the houses.

In the opinion of the author of this thesis this was an example of real partnering, both sides working together in an atmosphere of co-operation and mutual respect in order to achieve the optimum level of achievement and service for their customers. Producing good levels of communication between Estridge and vendors, no master/servant relationships, resulting in both sides working towards a common goal of *'doing it right first time'* (Crosby 1984). This in turn giving customers a high level of service resulting in customers reporting high levels of satisfaction and both Estridge and their vendors making a profit along the way.

11.4.3.2 Vendor Interviews

After the vendor council the researcher had the opportunity to have a private meeting with three of Estridge's longest serving vendors. What emerged from this meeting was that over the last few years Estridge has made a major move towards real partnering.

One of the vendors commented that working for Estridge for a number of years has been an evolutionary process, and they are now still working on the fine print. They complemented Estridge of all the companies that they work for as being best at being prepared to listen to their vendors and have a real two-way dialogue. They commented that Estridge was not perfect, but that they felt that there was a real 'top down' push to try to make the systems work, this was reinforced by the vendor council to ensure that the senior management get feedback from the vendors for them to check that the Estridge side is working and not just blaming the vendors when things go wrong. They also said that there is still some way to go, but that they would all make the journey together. When asked if it was making a difference to them financially, they thought hard and conclude that it had, less visits were being made and thus a saving in time and transport costs and thus an improvement in profitability. The Estridge system is a little more complicated that some builders, but better in the long run and the council could help to make it more practicable with time.

Communication is a big point with the vendors, the council has meant that they get to meet face to face on a regular basis and have got to know each other. This has had a spin off in that when inter trades disputes have happened, the vendor principles now know each other on first name basis and can meet over lunch and sort things out at the highest level which rarely happened before and can even prevent problems from occurring by co-ordinating their work better. The Estridge system of Work Purchase Orders (WPOs) and 'sign offs' can mean that when the system is used correctly then Estridge are good payers, on time and regular. This they agree make a big difference to vendors cash flow, it also makes a big difference to the level of service that the vendor gives to the builders that he works for. The vendor council also gives the vendors redress to the senior management when Estridge are not working within their own system, such as where builders are slow in signing off WPOs and holding up payments.

They are keen to see the council continue and prosper, the work that they are putting in is starting to pay off, they have managed to instil into many of their men the Crosby *'DIRFT'* ethic, and this has improved their work with all their clients, less defects and call backs. They also said that it has reinforced their thoughts on training; they will not send new men on to Estridge sites unless they are closely supervised until they know the Estridge systems. They have a long-term view on training, they are willing to invest in their men, but the men have to respond and they are just as keen to end relationships that are not working. They were keen to stress the need for strategic thinking and planning, not focussing in on one small problem, but keeping their eye on the large picture.

The experience of the council meeting and the private meeting with the vendors left the author of this thesis feeling quite depressed about the confrontational and adversarial ways of the UK construction industry. Here was a real attempt at partnering, not perfect but both sides working together to try to get it right and provide their customers with a 'quality product'. Here were small subcontract companies who were totally committed to training, they were happy to write off the first years training costs as they felt that they would pay dividends over the subsequent few years. They have a 'long term view about their businesses, this often seems to be lacking in all UK construction companies.

11.4.4 The Estridge Customer Interface

As previously stated, the author of this thesis is of the opinion that Estridge are using impression management as a technique to help to attenuate the often, unrealistic expectations of their customers.

11.4.4.1 HomeOwner Orientation Meeting

The *HomeOwner Orientation Meeting* is the first encounter that the customer has with the Estridge system and this is where Estridge start their impression management. This is the meeting where all customers who have within the last six weeks started on the process that leads to owning an Estridge home are invited in to the offices to be told in detail about this process and what will follow. The author of this thesis attended this meeting as an observer, Judy Roberts opened the meeting and asked everyone to introduce themselves and say where they are buying their new home.

The author of this thesis noted that where people were buying their second/third new Estridge home, there was a certain amount of pride expressed on the part of the customer, almost boasting about the fact. Even with the first-time Estridge buyers there was a sense of attainment/achievement in being in a position of nearly owning an Estridge Home. This is a phenomenon that the author of this thesis has rarely if ever encountered in the UK and indicating that the subjects are already in a receptive state for impression management. The house buying process was then described in detail, with Roberts stressing the importance of the customer's input and milestone events. The structure of the Estridge company was also discussed, the names of all the people whom the customers will come into contact with during the process, what they do and where they can be found in the offices. The customers were given a copy of a video that contained all of the important information that they will need and a copy of the BAGI standards. The new customer all felt part of the process, they even said that when saying on which development they had bought their home that *"they were building"* in such a community not buying, a clear sign that they felt that they were not just spectators in the process.

This was a gentle first step in the impression management process, Estridge were confirming their authority as the expert in the field of housebuilding, whilst being totally open about the process and involving the customer from day one. From what the author of this thesis could see and in conversations with the new customers, they were

all happy and willing co-operative subjects in the process confirming the Hovland et al. (1953) and French & Raven (1959) findings that when the *actor* was both expert and trustworthy in the area concerned, the subject would be more likely to accept what the *actor* said as being true. Estridge were starting to mould the expectations of their customers into something that the Estridge system could ultimately deliver and be judged against.

11.4.4.2 HomeLife' Orientation Meeting

The researcher also attended a *'HomeLife' Orientation Meeting* with customers who are encouraged to attend this meeting as a couple, the incentive is that if they do they will be entitled to the extended three year warranty instead of the one year standard warranty. It appears that most customers are happy to attend, with twenty couples attending this meeting. Diehm introduced the meeting, stressing how important Estridge Homes consider their customers to be and telling them that there are ways of getting the best out of their new home. He got every one to introduce themselves, on which development they are buying their new home and why they chose an Estridge Home.

The author of this thesis again noticed that those who were on their second or third Estridge Home seem to think that this was a wonderful thing and were intensely proud of this fact and those who were buying their first seemed to think that they had finally made it. Diehm then discussed the scope of the warranty and how it meant peace of mind for the homebuyer, in impression management terms this clearly established Estridge in the role of *actor*, and the customers, as *subjects* were made aware of the expertise and experience of the *actor.*

Ford then took over, and discussed the Estridge QA system, how the *'HomeLife'* inspectors (HLI) go about their tasks, demonstrating the care that Estridge take in

ensuring that the customer's house meets the required standards. Showing that Estridge has standards and is serious about achieving them, making the customers feel comfortable with the efforts of the company on their behalf. Again a good example of impression management techniques, making the customer feel confident that they can relax and let Estridge check their own work and feel confident that it will happen and produce the required quality of end product.

Ford continued to spell out the responsibilities of both Estridge and the customer, all the time setting the customer's expectation limits from their new home and the Estridge Company. Whilst setting these limits, he was constantly seeking agreement from the audience, and it was forthcoming. He emphasised the fact that Estridge wanted the home buying process to be as stress free for the customer as possible, and that they would do their best to achieve it with some help from the customer. He spelt out the fact that buying and owning a new house was in fact a two way street, outlining the customer's responsibilities as well as those of the Estridge Group.

Diehm finished off the meeting by recapping and showing part of the *'HomeLife'* warranty video that all customers were given as part of the *'HomeLife'* Warranty Manual as they walked in. Talking to the customers during and after the meeting the author of this thesis got the impression that they had all been converted to thinking the Estridge way, not as a cynical management ploy, but as part of a realistic education process in the care and use of a new home. If they follow the comprehensive advice contained in the manual and on the video they will not only have a trouble free first three years of occupation, but many more. Once again evidence that Estridge is committed to achieving high levels of customer satisfaction.

11.4.4.3 HomeLife Warranty Home Presentation Meeting

The Friday morning saw the author of this thesis out at the Estridge Centennial

Community at Westfield, attending two home inspections with *'HomeLife'* inspector Andy Gugle. The first was a home presentation meeting; the second was a full *'HomeLife'* warranty final inspection. The way in which these two events relate, is that the *'HomeLife'* final inspection is done first, the home presentation is normally scheduled for later that day or the following morning. In this case the first and second events were on two different homes, the *'HomeLife'* final inspection had been done the previous afternoon in the case of the home presentation. This customer had bought a stock house and thus had very little in the way of options, but even the basic house had many features that would be extra in the UK.

The customer arrived and introductions were made, Gugle told the customer about the process, showed him the list from the previous afternoon and told him that he would add any problem that the customer noticed to the list. This immediately put the customer at ease; a professional had already been through the house and inspected it, good impression management. The presentation consisted of a walk through starting upstairs in the main bedroom. All the features were demonstrated in each room, how the windows could be tilted and turned for cleaning, sockets and lights checked, furnace room and user instructions including air filters, kitchen appliances and how they worked. There was a lot for the customer to take in, but all the features of the house had been demonstrated and the customer was shown that all the instruction manuals for the appliances were in the kitchen unit draw. The result of the meeting being, that the customer went away happy and confident in the skill of the team that had built his house, and looking forward to closing the deal the following week. Good impression management, but also backed up by good standards of construction and finishing, with the result that Estridge achieved a high standard of customer satisfaction with this customer.

11.4.4.4 HomeLife Warranty Final Inspection

The *'HomeLife'* final inspection on the other home on this development did not involve the customer, just the inspector and in this case his new assistant for the day. The basic build quality on this house was good, but the standard of finish was not up to the normal Estridge standard. At one point Gugle considered abandoning the inspection and postponing the home presentation meeting as he felt that the house was not ready for that stage in the process, but the fact that the customer had made provision for the meeting persuaded him to carry on and finish the inspection. The standard of finish expected by the *'HomeLife'* inspectors and Estridge is high, as high if not higher than any that the author of this thesis has encountered on luxury developments in the UK, and this house did not meet these standards. In fairness to the builder, this is the first time that this style of houses had been built and so there was a steep learning curve, but at the end of the day Estridge are firm on the standards achieved on their houses. This particular house would not be handed over to the customer until it achieved these standards.

Though embarrassing for the builder who had long discussions with Gugle about the house, it was a good experience for the author of this thesis in that it demonstrated the Estridge were committed to producing a high level of customer satisfaction. This house did not meet Estridge standards so why should they expect it meet their customer's standards. It was unlikely that this house would go to closing the following week; the amount of work on Gugle's list was extensive and involving several vendors. This would mean that Estridge would probably have to wait a further week to recoup their investment in this house, something that private housebuilders in the UK are generally not prepared to do in the experience of the author of this thesis. It is important to clarify that the work on the list was of a superficial/finishing nature; no structural or major problems were encountered. The areas in question were however, exactly those areas identified by the researcher's own work in the UK as being the ones that are important to the customer, thus Estridge are complying with basic TQM principles and addressing the needs and requirements of their customers.

11.4.4.5 Existing Customer Interviews

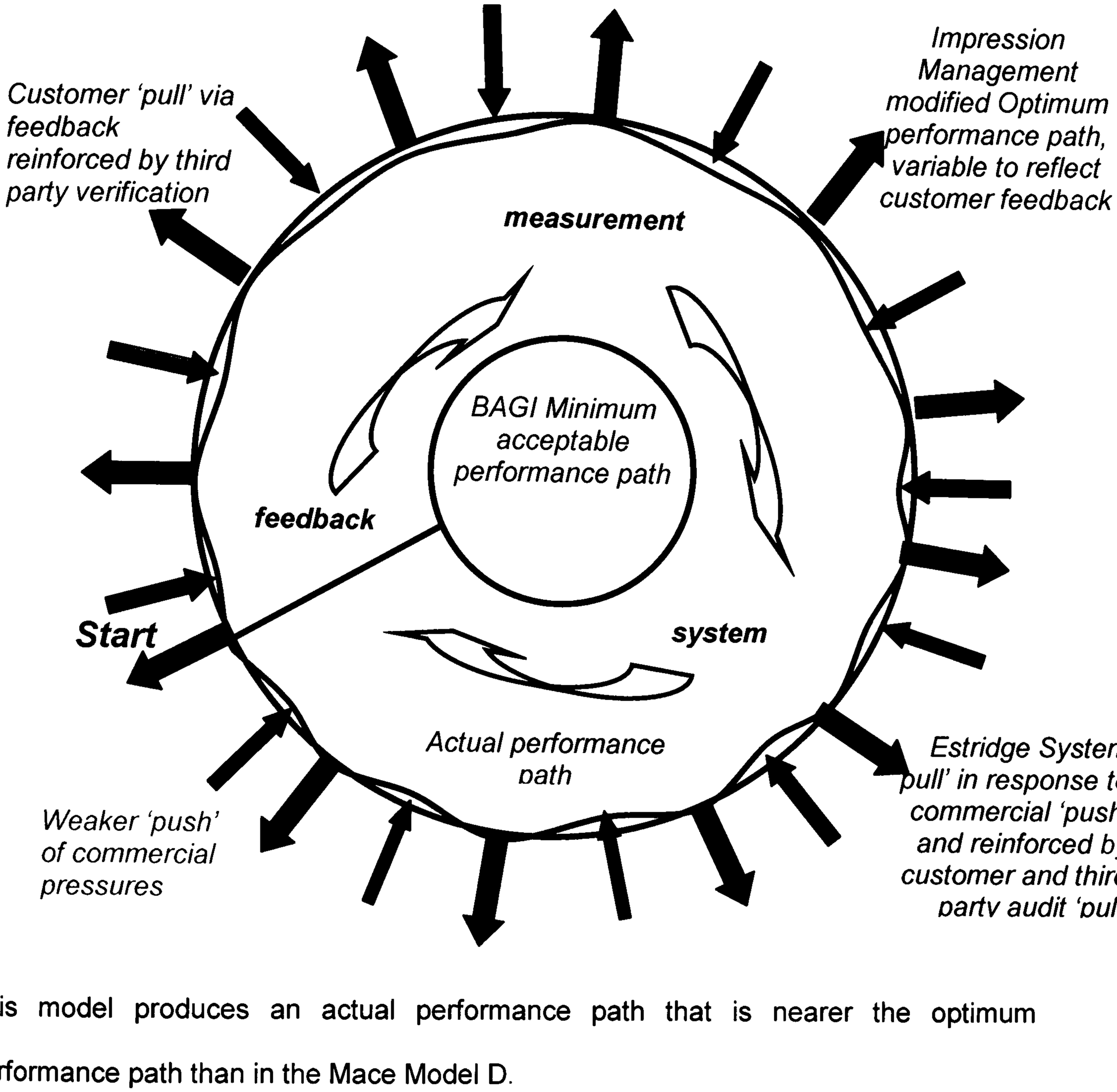
On the last morning in Indianapolis the author of this thesis visited the Centennial development for the last time and spoke to current owners about their experiences of owning an Estridge Home. Five owners were selected at random and asked about the standards achieved in their homes, the quality and reliability of the warranty/after sales service and their opinion on whether Estridge achieve a 97% customer satisfaction rating. All praised the high standards achieved, one a professional builder in the commercial sector indicated that the standards were higher than their competition; they agreed that Estridge did deliver on promises, the system was fair on customers and all would recommend Estridge to others, one customer was himself on his second Estridge home. They all considered that Estridge did achieve a high level of customer satisfaction and that in their opinion 97% was not an unreasonable level.

11.4.5 Conceptual Model E

The Estridge system produces a new house building conceptual model E (see overleaf); it is nearer to the Mace model D than the traditional UK housebuilding model C. In this model the commercial pressures are weaker due to the strong stance on compliance of standards taken by senior management. The company system has been developed to be robust and deliverable and to be able to resist the commercial pressures and works with the customer feedback pull and third party verification pull to continuously meet and improve standards where required. The system has a robust defects resolution process in place as an integral part of the warranty and adds to rather than subtracts from achieving customer satisfaction. There is no effect from cognitive dissonance in this model as IM techniques have eliminated the situations that may give rise to cognitive dissonance occurring.

Conceptual Model E

The Estridge System Model



This model produces an actual performance path that is nearer the optimum performance path than in the Mace Model D.

It could be argued that the optimum performance path in the Estridge Model is actually at a different level than the Mace model; as Estridge have by using IM set their optimum performance level in agreement with their customers at the start of the house buying process. Estridge have more control of the process and it could again be argued that it is easier therefore to achieve an actual performance path that is nearer to the optimum than Mace. This model is very close to representing real TQM in all its facets, as in TQM conformance to customer requirements is non-negotiable and all Estridge have done is manage their customer's expectations to a level that the company can achieve.

11.5 Summary

The author of this thesis is not suggesting that Estridge has the panacea to all quality problems in new housing but; here is a real attempt to give home buyers the highest level of customer satisfaction. Estridge are realists, they know that it would be impossible to meet the vastly different expectations of 500 people per year with respect to their new home, so they have adopted a system that uses impression management techniques. Talking to the people at Estridge, they were not aware of Impression Management as a psychological technique, they just think of their system as making good sense. Their system helps to define the upper limits of expectation and the copies of the BAGI standards to define the lower limits of expectation. Thus, all of their customers know from the start of the process what to expect and when to expect it, by continuing with the house buying process they are accepting the upper and lower limits of expectation. These limits then become the accepted standards or in TQM terms customer requirements that the Estridge company performance will be measured against in terms of conformance. Setting these limits also enables Estridge to set up practical and usable management systems that is able to manage this range of expectations, an essential in order to meet the high levels of customer satisfaction required.

They have a system whereby they constantly measure this conformance using both internal and independent external consultants employing feedback questionnaires, thus ensuring that the standards are being met and more importantly, still meet the customer's requirements. In the opinion of the author of this thesis, this system is as close to a TQM system as could be devised in the speculative house building industry. They involve their customers from day one in a totally transparent process, inviting them into the office, educating them in the housebuilding process and more importantly the house owning process. Their evolving systems are designed to deliver the

customer's requirements as a matter of course, using the partnering concept with their vendors. This partnering concept is not just a loose association, but also a real two-way dialogue between two interested parties, that is now showing real signs of success. And lastly they are prepared to stand up for their own high standards and delay the closing on a property incurring financial losses in order to protect their high reputation. The system does work, the author of this thesis has seen the commitment first hand, seen the reports from Woodland O'Brien and spoken to customers of Estridge and they have confirmed that the company does in fact deliver high levels of customer satisfaction in the region of 97%.

In the opinion of the author of this thesis, who had over seven years experience with national and regional housebuilders building private new homes and over nine years again with both national and regional builders building social housing in the UK, the level of finish achieved in these houses is both technically and aesthetically good. The standards achieved are probably better than anything the author of this thesis has seen in the UK in houses of comparable nature and price. The attention to detail in finishes is on the whole better than in the UK, and from the interview and questionnaire work done by the author of this thesis, this is the area of most concern to UK homebuyers.

CHAPTER 12 - QUALITY: - THE WAY FORWARD?

12.1 Introduction

This thesis has mapped out a personal journey into and through the concept of quality; and once a journey such as this has been undertaken there is no going back to the perspective that existed before the journey was made. This said, the author of this thesis now having made the journey does not claim to be any nearer in being able to define what absolute quality is than when he started on the journey. He is certainly now more aware of the difference between absolute quality and that which can be defined. He feels that this research has enabled him to uncover the elements of definable quality and therefore to be able to define it. He has also become aware that quality matters greatly to the end user of a product or service, and that measurement of customer satisfaction is the only measurable means by which to indicate levels of the personal defined quality achieved by products.

Now at the end of this research exercise, Lao Tzu has once again been proven right in his teachings of two and a half thousand years ago and that *"The quality that can be defined is not the Absolute Quality".* In order to define absolute quality we would need a set of absolute criteria that are relevant to all situations and can be applied universally without the slightest deviation from the criteria, clearly a seemingly impossible task.

12.2 Definable Quality

In the course of this document the quality theme has been developed and what emerges concurs with Lao Tzu; what we are trying to define, achieve and measure is not the concept of absolute quality, it is customer satisfaction based; personal defined quality in relation to a specific item or service.

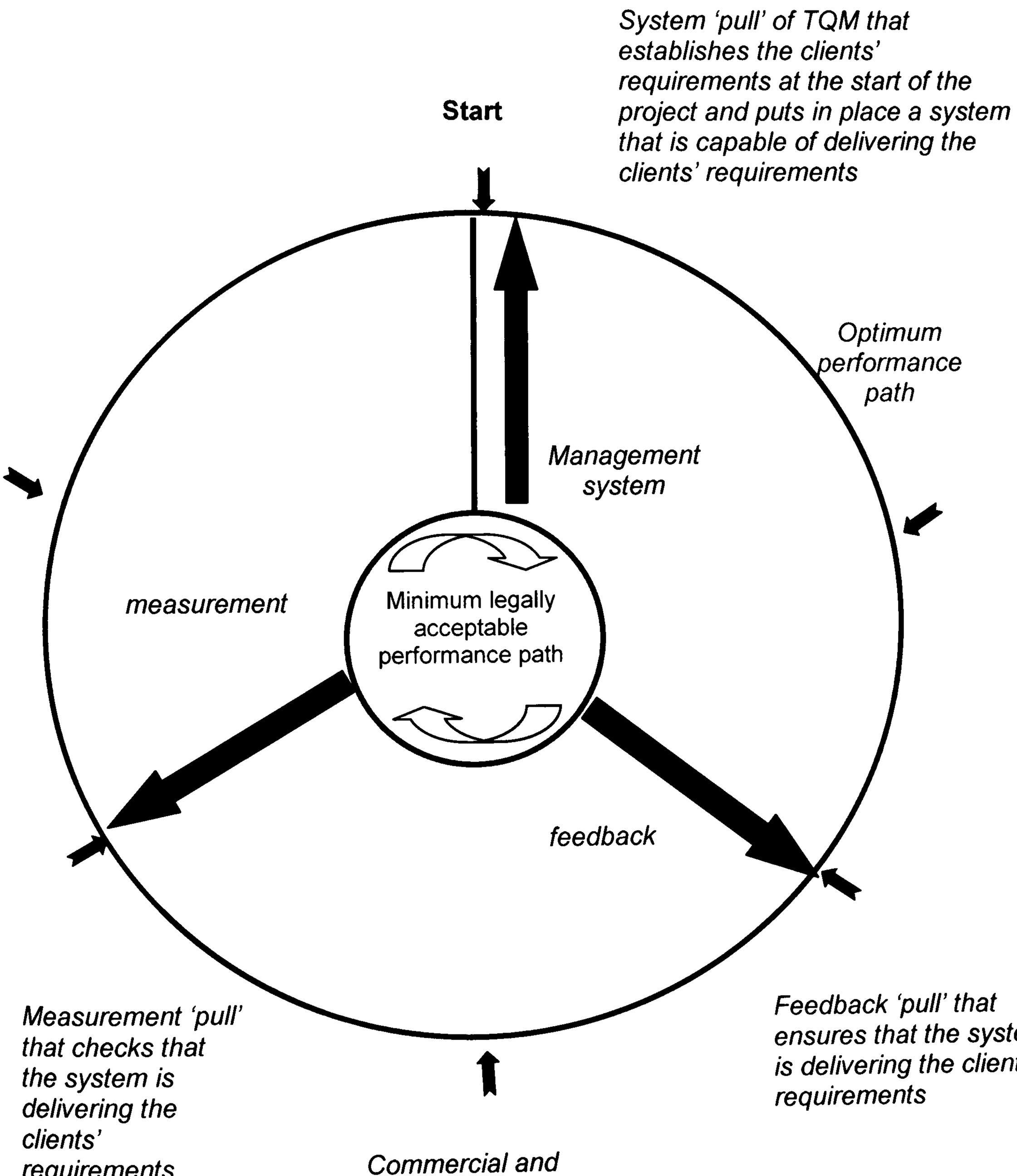
Absolute quality, the philosophical concept has no real meaning outside of a literary utopian world, where all things must be regulated to the n^{th} degree, where there can be no personal choice or freedom other than to conform to the prescribed way. In this type of world absolute quality *can* be defined and achieved, but would become an irrelevance due to the fact that there would be no choice. The criteria for each item/service would need to be universal and therefore essentially to be deliverable would equate to one set of criteria that would result in a lack of choice.

It could be argued therefore, that quality only becomes relevant where there is a choice between different products and services, and quality then becomes the major criteria used to make a decision on which one to choose. The author of this thesis does not wholly subscribe to this argument, as this can only be the case where the customer is making a purchase involving more than one similar product, and thus has a real choice. As this research is concerned with the new private housebuilding industry, and as discussed previously and revealed in the interviews, most customers buy their new house based on its location, thus, the only real choice they have is do they buy the house or not?

The research has confirmed the Crosby rule of quality management: *"Quality has to be defined as conformance to requirements, not goodness"* Crosby (1984), as being the only way to define measurable quality. It is a basic tenet of Total Quality Management. The research has also identified that in order to measure the quality of goods or services the only reliable measurement method that an organisation has available to it is to measure conformance to customer requirements, (and thus customer satisfaction). The organisation is then able to implement a management system that is able to incorporate achieving the customer requirements as part of its core activities as shown in Conceptual Model A (see overleaf). This model shows the optimal system in which all the forces are balanced and the optimum performance path is thus achieved.

The model is theoretical, as it is unlikely that all the forces will balance each other in a simultaneous manner. The resulting actual performance path will deviate from the optimum path, returning to the optimum once the effect of the balancing forces brings equilibrium back to the model.

Conceptual Model A



12.3 Customer Satisfaction

Gruska (2000) tells us that, since the second-world war the general public has become more critical of goods and services, even in the case of monopoly services such as the Danish Postal System. This is a similar situation to the UK housebuilding industry; the only choice is to use the postal system or not to use the postal system.

As Kristensen et al. (2000) found, the overall customer satisfaction/quality of an item or service is a composite of *hard ware* (performance, actual measurable outcomes – *hard issues*) and *human ware*, (the attitude, expectation and perception of the product or service by the user - *soft issues*), and these two areas are interlinked, the impact from each area varies according to situation. The *hard issues* are still important, but the *soft issues* now seem to be just as, if not more important than the *hard issues* and thus the picture is now more complex in terms of quality/customer satisfaction.

It was shown in chapter five that the UK housebuilding industry has more in common with manufacturing than the commercial sector of the construction industry. Thus the work done on quality in the commercial sector of the industry has not been a good fit, and this is why the author of this thesis considered the quality aspects of other industries to see if they were a better fit.

This research has considered concepts and literature on quality and customer satisfaction that appeared to be both relevant to and could be applied to the new housebuilding industry. The UK housebuilding industry could best be described as a cross between a consumer goods manufacturer, a service provider and a builder. Thus the quality strategies used by these types of industry are all only a partial fit for the UK housebuilding industry. Some were a straightforward fit some not, some it would seem due to absence of literature had not been applied in this setting previously.

The concept of *fit* or not in this case refers to the fact that the customer satisfaction strategy employed by an industry is generally in the form of a complete package of measures. The measures are interrelated, forming checks and balances and when one aspect is missing or out of agreed tolerance then the whole system goes out of balance and thus will reject the product or service as being non-conforming to customer requirements. With the hybrid nature of the housebuilding industry, the strategy (complete package of measures) from such as the commercial construction industry would be impossible to implement, as would the other industry strategy. Each strategy would as a matter of course be missing an essential aspect and thus flag up a non-conformance situation.

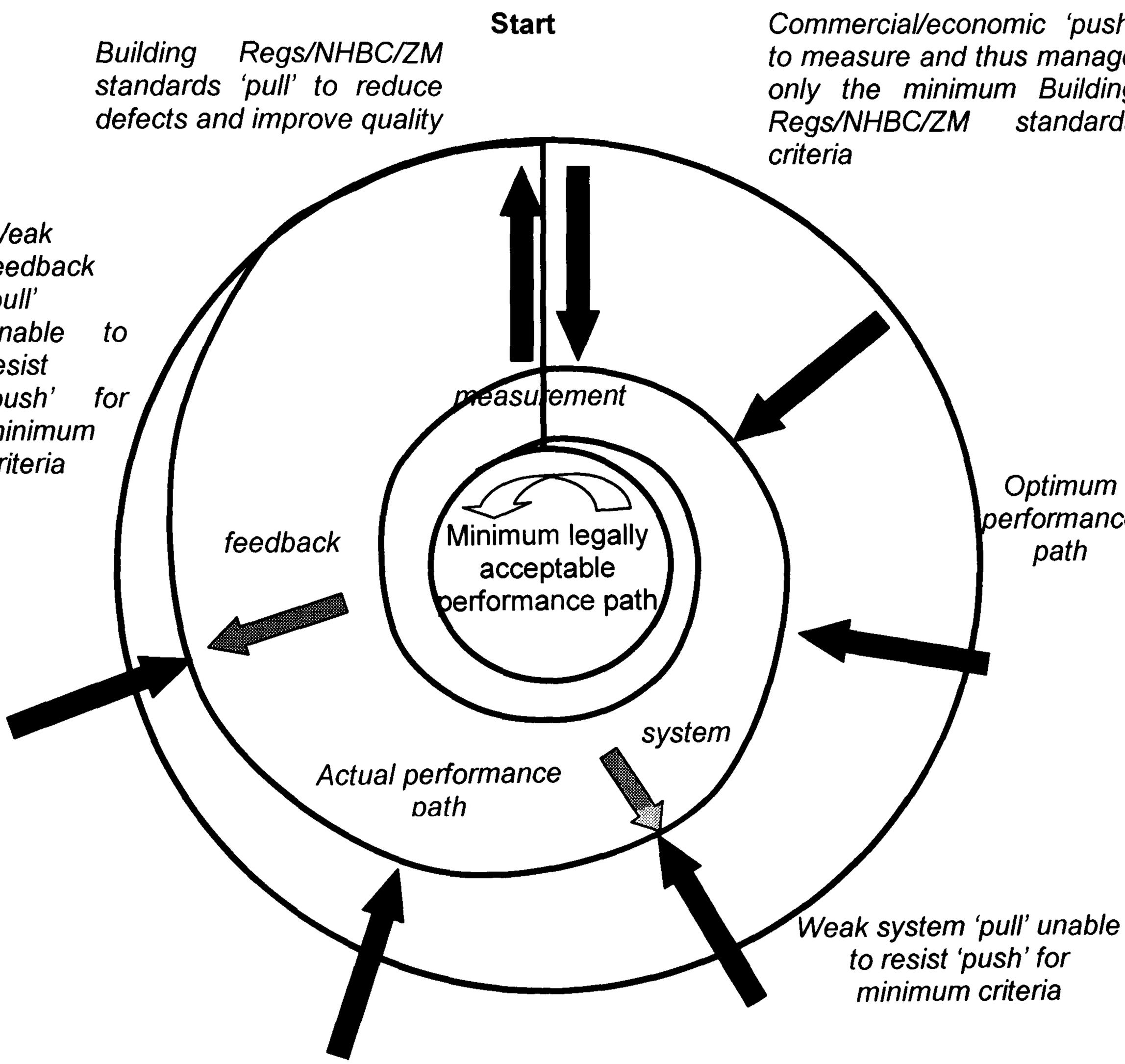
The optimum solution for the UK housebuilding industry must therefore be based on a strategy that incorporates the relevant parts of all these other quality strategies.

However the picture that emerges of the private housebuilding industry in terms of quality/customer satisfaction is one that is very fragmented and often contradictory. Many of the large UK private housebuilding companies have written and published strategies on quality and customer satisfaction, but, due to the imperfect fit of most current quality processes on the housebuilding process, lack the tools and the commitment to deliver on these strategies. The research has detailed cultures from three companies; the UK housebuilder that lacks the Crosby *top down* quality culture the commercial sector builder who has the *top down* culture and the American housebuilder who also has the *top down* culture. The actual performance of the UK housebuilding companies in terms of achieving high levels of customer satisfaction, and therefore quality, is questionable.

The housebuilding industry has warranty providers, private companies whose business strategy is to provide long-term structural warranties on new private houses, and who are expected by government to act as independent quality watchdogs on behalf of the

customer but with they have no actual regulatory powers. This is the situation that gives rise to Conceptual Model B; weak management, regulatory and feedback systems that are unable to resist the commercial and economic push.

Conceptual Model B



Based on discussions between industry professionals and the author of this thesis, the largest economic push is still the requirement to meet company year end figures; and this push has the effect of limiting the consistent level of achievement of the actual performance path to that which is normally above minimum regulatory standards, but well short of the optimum performance path.

The UK therefore, has £16 billion a year plus turnover industry producing very expensive consumer goods with very little quality regulation apart from legislated technical issues, and often operating in a monopoly situation for a particular location. Third party verification supplied by the HF/MORI reporting a customer satisfaction rate of 87% in 2001 dropping to 83% in 2003, which on the whole acts as a disincentive for the housebuilders to change as 83% of customers is still a high figure. A positive outcome from the HF/MORI exercise is the production of league tables that rate companies against each other and thus the need to improve their place in the table may be seen as a challenge to improve their quality/customer satisfaction rating by the housebuilding companies.

12.4 Customer Satisfaction Surveys

The research has considered the fact that due to the customer's subjective views on quality, customer satisfaction ratings will be affected and thus the representational nature of these surveys has been brought into question. It has highlighted the lack of a consistent set of finishings criteria by which the customers can assess the product and service given by the builder. Without this set of consistent criteria, the questions asked to homebuyers in customer satisfaction surveys do not all have the same meaning. This coupled with the fact that technical terminology again will not have a universal understanding amongst the lay-persons, which means that hypothesis ii. has also been proven by this research. The aspect of finishings has been established by this research as the most important aspect to the customer; and interestingly the summary

for the 2003 HF/MORI survey published in Feb 2004 has also noted that customer satisfaction of the construction and finish aspect their new house continues has declined in this survey from 77% being satisfied in 2001 to 73% in 2003.

In the main questionnaire survey of this research project, the three statements dealing with finishings recorded *dissatisfaction* levels of 46.6% for plasterwork, 60.4% for woodwork and 35% for general finishes. This finding has addressed specific objective i. assessing the level of quality achieved by the UK house building industry form the point of view of the customer. Clearly these scores show lower levels of customer satisfaction than the national surveys; however if we look at the trends shown in the national surveys the overall level of customer satisfaction with their new home has in fact been declining over the course of the three surveys.

Although the headlines claimed that the percentage of customers being satisfied with their new home was 87% in 2000 and 87% in 2001, the number who were very satisfied dropped from 45% in 2000 to 43% in 2001. The overall percentage satisfied with their new house in the 2003 survey is 83%, with those who were very satisfied again dropping this time to 40%. (Summaries of the HF/MORI surveys are to be found in appendix G). This trend supports the suggestion that the 2000 HF/MORI survey percentages, higher than the results produced by the main questionnaire survey undertaken in this research were in the region of 10% higher than they should have been.

The 2001 HF/MORI survey summary stated that the changes implemented by the housebuilders as a result of the 2000 survey would not show in this survey, the impact would be on the figures in later surveys. If the 2003 survey is correct they not had the impact as had been hoped for, in the seven key findings six out of seven have recorded lower figures than the 2001 survey and this has become a slight downward trend since the 2000 survey. The only key finding to record a similar level of satisfaction from the

2001 survey was in the value for money category 78% in 2000; 82% in 2001 and 82% in 2003, where those who were very satisfied rose slightly from 33% to 37%.

These figures it could be argued show that instead of getting better the UK housebuilding industry is getting slightly worse year on year. Or is the real problem as has been described previously, that the lack of accepted finishings criteria resulting in customers implementing their own individual subjective personally defined quality criteria, which according to Festinger (1957) is producing the textbook situation for *cognitive dissonance*[3] to occur? Zimbardo (1969) has shown the effect that cognitive dissonance has on customer's decision making, forcing them to make face saving u-turns and thus making satisfaction surveys findings more positive than the real picture would indicate.

The reason for the downward trend in the HF/MORI survey findings, if we are to accept that the UK housebuilding industry is not actually getting worse, is that when findings showing customer dissatisfaction are published, customers can now see that others also are also dissatisfied. They can now feel justified to state their own dissatisfaction without setting up cognitive dissonant states, and perhaps the effect of cognitive dissonance may begin to weaken when it is seen to be acceptable to the house buyers for them to complain that they have not got what they thought they were getting? If this is the case, the HF/MORI survey may find that the trend towards dissatisfaction is a continuous one. Without the set of agreed criteria suggested by this research, the customers own personally defined criteria will become more and more demanding as Gruska (2000) suggests. The Large Scale Survey has addressed specific objective ii. by establishing and testing the twenty customer derived statements that could now form the basis for a set of performance criteria.

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[3] Cognitive dissonance is mental conflict brought about by two conflicting sets of criteria that can change a person's opinion about a situation. (Chapter 9 section 4.)

12.5 Quality Management Systems

The thesis has discussed a UK housebuilding company with textbook QA procedures and training regime, but lacking the essential Crosby requirement of conformance to customer requirements in order to achieve measurable quality/customer satisfaction. The company in question seemingly lacks the top down commitment to quality and also lacks the company wide culture of any non-conformance to standards being unacceptable as a core aspect of the business. It is thus failing to deliver the company's own required level of quality/customer satisfaction on a consistent basis.

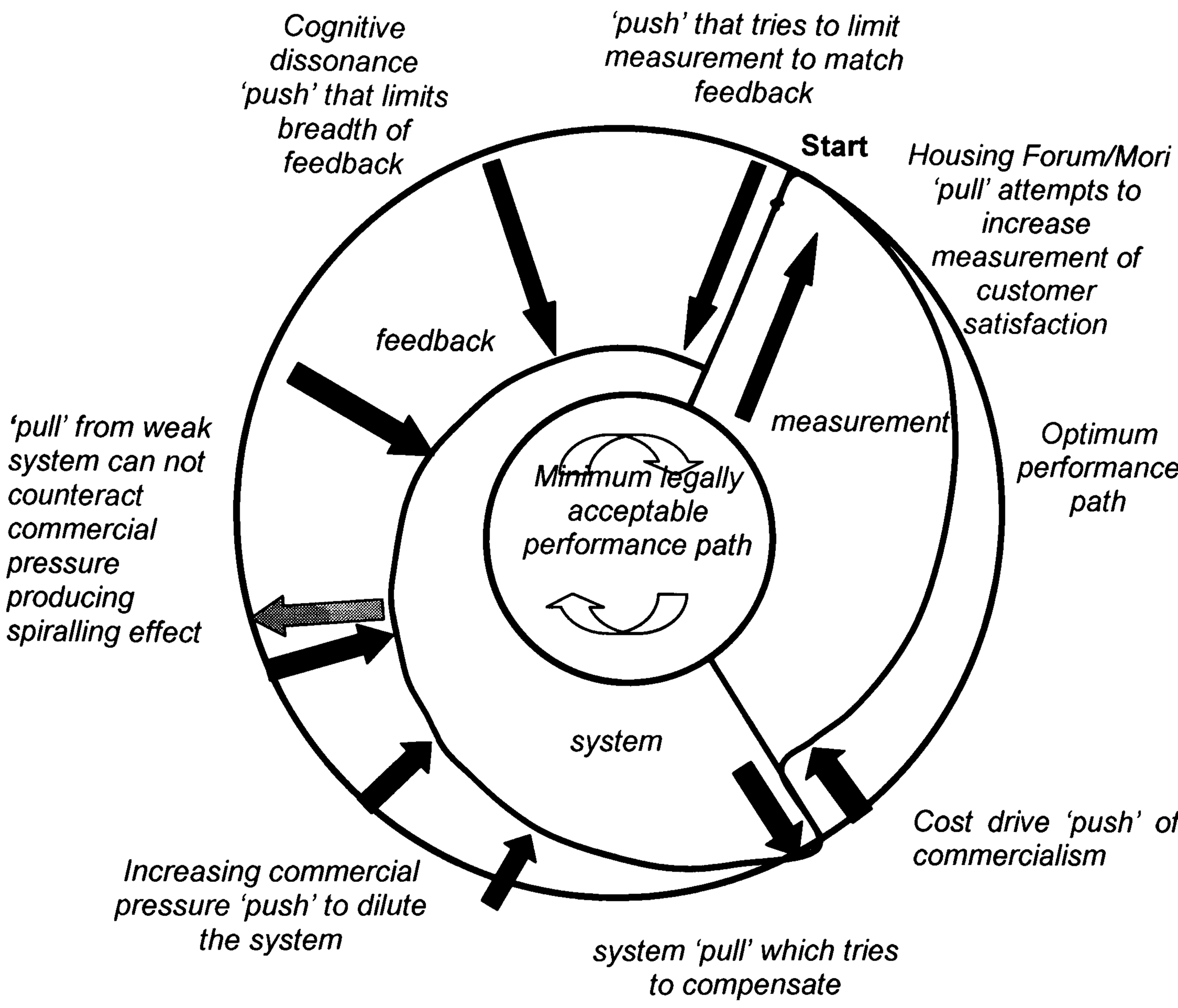
The buoyant nature of the current new housing market has also removed the incentive for house building companies to concern them selves too much about this issue, houses are still selling. This proves that Hypothesis i. is correct, the UK private house building industry knows about the problem, they have implemented QA systems but do not all apply them with the same degree of rigour especially when it comes to the end of the financial year.

This system gives rise to Conceptual Model C shown overleaf. In this model the system including feedback aims to balance out the commercial and cost pressures but are inadequate; hence the actual performance path (whilst being better than minimum acceptable performance path,) never achieves the optimum path for more than a few moments before decaying down towards the minimum acceptable path.

The thesis has shown that the commercial contracting sector of the UK construction industry has been able to make measurable improvements in definable quality/customer satisfaction over the last few years. It has detailed a major project management and contracting company that by following the classic quality theories and well-documented procedures has installed the process and necessary culture into their organisation. This company reports that it is now recording measurable increases in

definable customer satisfaction and is able to demonstrate that these levels relate to the industry Key Performance Indicators (KPIs) and their own project profitability. This has partially proven hypothesis ii. to be true, it is possible for a sector of the construction industry to achieve definable quality, and also addresses part of specific objective iv.

Conceptual Model C

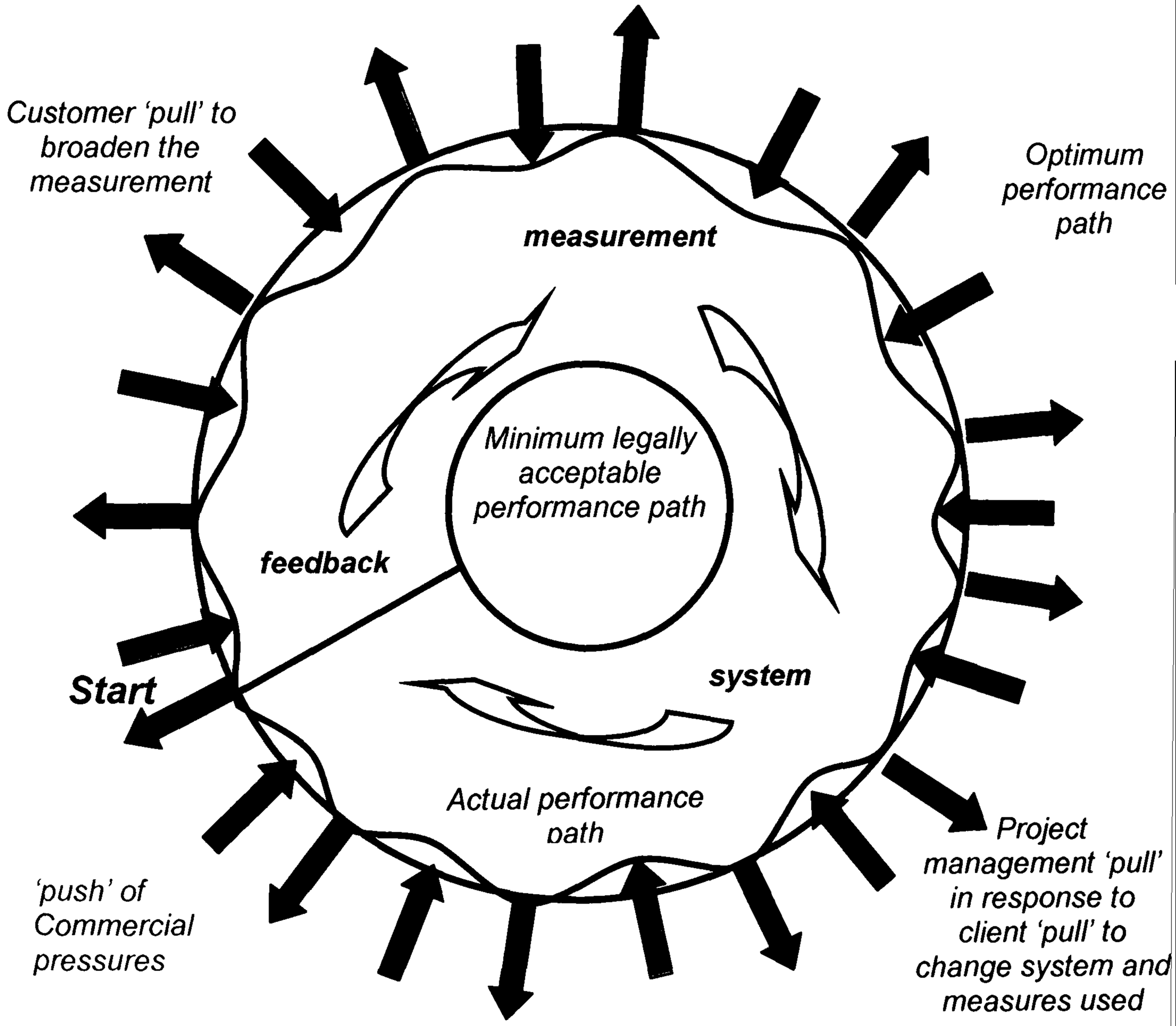


The company has addressed the Crosby and TQM essentials and set out to engage with their customers. They specifically find out what their customers want and to check with them whether they are getting what they want not just at the end of the project, but whilst the construction and finishings are ongoing. Thus changes to the system can be

introduced if necessary in order to reflect the client's level of satisfaction. Conceptual model D is devised from this company's processes and procedures.

In this case the management systems address the customer's requirements, they have robust feedback systems in place to constantly fine tune the system resulting an actual performance path that closely tracks the optimum performance path. This system reflects the Crosby and TQM requirements of conformance to customer requirements.

Conceptual Model D



As discussed previously the actual performance path will always never completely match the optimum performance path, due to the fact that there will always be *real time* lag between mismatches in levels of satisfaction being delivered by the system and

those that those required by the client. This *real time* lag will still be evident in the most responsive system possible. The two paths will produce the most convergence where the systems have closely matched the client's requirements with the company's own management systems, so that the likelihood of client dissatisfaction occurring is reduced.

The thesis has also detailed an American housebuilding company that has taken on these same Crosby requirements, making the top down commitment and putting in place the essential company procedures to *enforce* the definable quality/customer satisfaction led culture. This company is prepared to go further than just internal measures, setting up robust partnering systems with their subcontractors in order to deliver their 100% *'totally enthused customer'* aspirations.

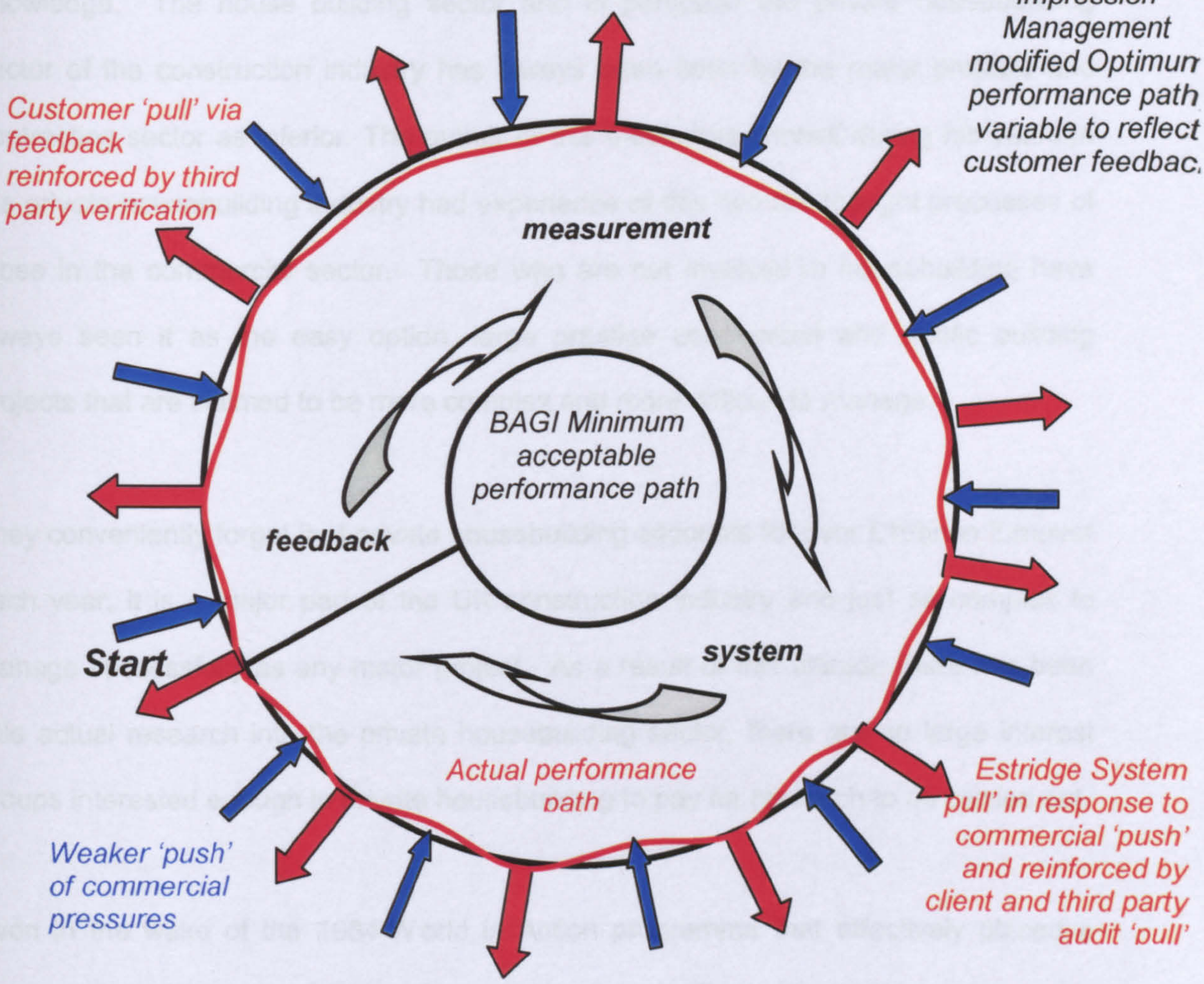
This company recognises that it cannot meet the individual requirements of all their customers and so is therefore prepared to engage with them from the outset, make them part of the process and explain what their part of the process is. A company that is prepared to set out the criteria by which the customer can judge the company's service and end product and have systems in place to deliver to these criteria and a company that will accept no deviation from the stated performance levels, creating in effect a zero defect system.

In this situation the potential for cognitive dissonance to occur is eliminated due to the fact that the company has implemented *Impression Management*[4] in order to limit the range of customer expectations to a level at which that they can deliver on a consistent basis using the company's own system that delivers a zero defect end product by accepting no deviation from the stated standards/requirements. This case study has

[4] Impression management is the concept of managing people's expectations by setting out at the start to establish the company as an expert in the field. That in turn gives the customer confidence in the company to deliver goods and services to an agreed level. The company sets out the criteria by which this agreed level can be measured and thus ensures that their system is sufficiently robust to deliver these criteria on a consistent basis. (Chapter 9 section 5.)

proven the case for hypothesis iii., it is possible for both the commercial and private house building sector to achieve high levels of customer satisfaction. This case study has resulted in production of Conceptual Model E

Conceptual Model E



This system has an Impression Management modified optimum performance path that is capable of being achieved by the system. The company using their robust zero defect system which is continuously verified and modified by external consultant conducted customer satisfaction surveys, thus is confident that it achieves a 97% conformance to customer requirements rating and thus definable quality. The system produces an actual performance path that is consistently close to the optimum performance path; the gaps between the two paths are small and relatively infrequent, being closely controlled by the robust system.

12.6 Emergent Issues

What then is this research project's contribution to knowledge? There are several aspects in which the author of this thesis considers that it has contributed to knowledge. The house building sector and in particular the private housebuilding sector of the construction industry has always been seen by the major projects and contracting sector as inferior. The author of this thesis has himself during his years in the private housebuilding industry had experience of this two tier thought processes of those in the commercial sector. Those who are not involved in housebuilding have always seen it as the easy option, large prestige commercial and public building projects that are claimed to be more complex and more difficult to manage.

They conveniently forget that private housebuilding accounts for over £16bn in turnover each year, it is a major part of the UK construction industry and just as complex to manage successfully as any major project. As a result of this attitude there has been little actual research into the private housebuilding sector, there are no large interest groups interested enough in private housebuilding to pay for research to be carried out.

Even in the wake of the 1984 World in Action programme that effectively placed a moratorium on the use of timber frame technology in England and Wales for nearly twenty years because of quality problems and procedures, there were no builders committed enough to this technology to finance research to try to prove that timber frame technology was sound. This research project has addressed this lack of research and focussed on the private housebuilding sector. However, it too when seeking support from the private housebuilding sector found, no company willing to commit any resources despite offering words of encouragement.

The research has identified a lack of definable quality criteria relating to finishes accepted by both industry and customer in private house construction, it has also explained the problems and potential problems that arise from this lack. The research has identified twenty customer derived statements used for this study that relate to those aspects of private housing that the customers consider to be very or critically important. This has now defined the PN parameters and therefore the limit of the purchaser's minimum field in conceptual model B1 (page 86) as discussed in chapter six. This has filled the perception gap PG1 as shown in conceptual model B1b (page 89). These customer-derived statements could be used as the basis for a set of performance criteria for finishings, something that in the opinion of the author of this thesis, the industry needs to establish before customer demands become totally impossible to achieve.

The aspect of the larger PL field and thus perception gap PG2 has not been addressed in this research. The interviewees when asked if they would pay more for the warranty to cover more did not feel that this would be of interest to them.

The research has identified that in the sample the customers all take for granted that their new house has been inspected by outside bodies during the construction process and consider this to be very important giving them peace of mind. They are mainly lay persons when it comes to construction matters and thus have no experience or skill in differentiating between good and bad practices in the construction of houses. It has identified that the main aspect of new private housing that causes the most concern to customers is the standard of finishes achieved in their new house, the very area where a lack of criteria exists.

These are the not the aspects that the private housebuilding industry or author of this thesis (at the start of this research), normally considers to be important. In the experience of the author of this thesis, the private housebuilding industry attitude in

general is that if the structure is sound then everything else can be fixed, and thus concentrate their efforts on the structure. This emphasis is to some extent born out by the NHBC figures where they suggest that standards are improving, as major structural warranty claims are small in comparison to the number of properties currently under warranty. These figures specifically relate to non-conformances to either building regulations or the NHBC's own standards and are therefore technical defects, and are what the warranty inspections are meant to prevent or to uncover prior to completion.

This indicates that the inspection regime is not as robust as the customer is led to believe by the NHBC's own literature. The fact that their new home has a structural warranty and therefore it will have been inspected and will conform to all the regulations that currently apply is according to interviewees considered to be a given. They may be expecting too much from their warranty provider, but there is no evidence to suggest that the warranty providers discourage this expectation. In fact the private housebuilders use their membership of warranty schemes as a sales point suggesting that this means peace of mind for ten years for their customers (see Chapter 6). There are no figures from the NHBC or other warranty providers regarding the finishes aspects of new homes, as finishes do not form part of their warranty.

This project has not only identified the aspects of new housing that are important to the customers but has also identified the fact that in many cases these important aspects as delivered by the builders are not meeting the expectations of the customers. When considering the aspects that do not meet customer's expectations, the percentages that the survey produced would indicate that the HF/MORI surveys are producing overall satisfaction ratings at least 10% higher than would be expected if the individual aspect percentages were correct. The results of this research have shown that the individual element customer satisfaction percentages are a truer reflection of general customer feelings based on both interviews and general discussions with new house buyers.

The results of this research have shown that cognitive dissonance is a contributory factor responsible for the discrepancy between individual element ratings and overall satisfaction ratings. The research undertaken into cognitive dissonance highlights the fact that where two sets of criteria are not similar, the customer's and the builder's in this case, presents the classic setting for cognitive dissonance to occur and become a major factor affecting the assessment of customer satisfaction. The lack of criteria in the aspects of private housing that the customers have indicated as being most important has led to each customer creating their own set of criteria by which to judge these aspects. The customers therefore have widely differing sets of criteria; many of which may be unreasonable due to this lack of agreed criteria. Where definite criteria are absent, people create their own criteria, these will be formed through past experience, impressions gained from the show house and other factors that may allow them to establish higher expectations than are actually deliverable by the builder, thus they are unreasonable.

The main factor in this is that the customer's expectations and thus criteria are different from those of the builders; therefore the end result will always be some form of dissatisfaction on the part of the customer. The customer being subjected to the two often widely differing sets of criteria about a major purchase, and Zimbardo (1969) tells us that the more important the purchase the more likely that cognitive dissonance will arise. The effect of cognitive dissonance is that the customer modifies their criteria as a face saving exercise (Zimbardo 1969) saying that overall the house meets their expectations and thus bring into question the results of any third party customer satisfaction surveys. Whilst cognitive dissonance according to Zimbardo does affect major decisions, if we then consider the individual elements of the house such as the paintwork, plaster etc the magnitude of the decision diminishes and therefore the likelihood of cognitive dissonance occurring due to the difference between the customer's own set of criteria and thus standards and the standard of the element as

presented by the builder. Thus the customer does not find it difficult to criticise the individual elements, their own criteria are not being diminished in order to maintain the cognitive balance. Considering these psychological concepts addresses part of specific objective iv.

The research considered the effects of impression management techniques and suggested as to how they can be used to prevent the occurrence of cognitive dissonance by limiting customer expectations from the start. It has applied this research to the housebuilding industry, and put forward the concept that if the housebuilder casts itself in the role of the *actor*[5], and establishes itself as the expert in control of the process setting out transparent criteria by which it can be judged, the customer will then be happy to shed their responsibilities and take on what the expert/actor has proposed. The customer will now not need to derive their own personal set of criteria and thus, there is now no conflict between two sets of criteria and no cognitive dissonance. The actor/builder has by using impression management techniques removed the basis by which the inner conflict arises and the customer when now asked about the satisfaction rating of their new house has a set of criteria by which to judge each aspect and come to a decision that will be more in line with the individual aspects.

The research has identified an American private housebuilder who is actually using impression management techniques to manage their quality aspects, they did not know that they were using the concept of impression management, they called it common sense. It has outlined the process as used by the company to achieve what is considered to be a reliable 97% customer satisfaction rating, established by a reputable quality assessment company, and further backed up by the author of this thesis' own enquiries on his visit to Indianapolis. This company has built up their own

[5] In IM theory, the company adopts the role of actor, and sets out to convince the customer that the actor is competent and an expert in the given field and thus the subject or customer can have complete confidence in their ability and judgement.

internal systems over the last ten years, established robust and flexible partnerships with their subcontractors and customers and implemented the Crosby ethic throughout the company from the top down. They have been rigorous in their implementation of their own systems, accepting no deviations from the high specification even when it means not completing on a house and costing the company money. They claim that it is cheaper to do this than let the house purchase go to closing and try to remedy defects once the customer is in their new house. Where customers move into incomplete houses their attention is already aroused and they will then start examining everything for the smallest defect that is often outside the scope of the standards agreed at the start of the process.

This strict adherence to their own standards has further enhanced their reputation as *actor* in their use of impression management, as a company that is authoritative and expert. The author of this thesis has seen first hand that the fact that these customers see the fact that they have been able to become one of this company's customers as an achievement in itself. Some proudly boasted at the meetings attended by the author of this thesis, that this was their second or third purchase. There is no evidence to indicate that the impression management techniques used are not working, but there is evidence to show that the company is now seeing some benefit in terms of reduced maintenance callout work and enhanced sales. It has now become a major marketing tool for the company, and where they are in competition with the major national private housebuilding companies they are beating them in terms of sales.

The thesis has suggested that impression management can be used to control and modify customer's expectations into those that can realistically be delivered by the UK private housebuilders, the US company example proves concept is practicable. The fact is that the use of impression management will eliminate the factors that cause cognitive dissonance and thus help to eliminate it and this is also proven in other areas of research. This elimination of cognitive dissonance means that customer satisfaction

survey results would be a true reflection of the customer's assessment of whether the builder has delivered against the agreed set of criteria, producing robust and accurate customer satisfaction ratings.

This research has enabled the formulation and production a series of conceptual models that illustrate the different situations of the quality process found in the construction industry. In this it has addressed specific objective iii. The series starts with the theoretical perfect situation drawn directly from the literature, model A where all the forces are in balance and the systems in place produces zero defects, i.e. no deviations from the customers requirements (assuming no technical/legislative defects) resulting in 100% customer satisfaction.

It then progresses through to model B that represents the current situation in UK private housebuilding. The position is far from the ideal of model A that does achieve TQM and 100% customer satisfaction, it goes in the wrong direction starting out from minimum criteria and exhibits the problems of weak management systems that cannot resist the commercial pressures and does not deliver high standards of customer satisfaction. Model C does corrects this direction, it shows the effects of the private housebuilder's QA systems and HF/MORI survey feedback have in producing a better than minimum performance path. It is one that is still heavily subjected to commercial pressures such as year-end figures; however, it is an improvement on the previous model.

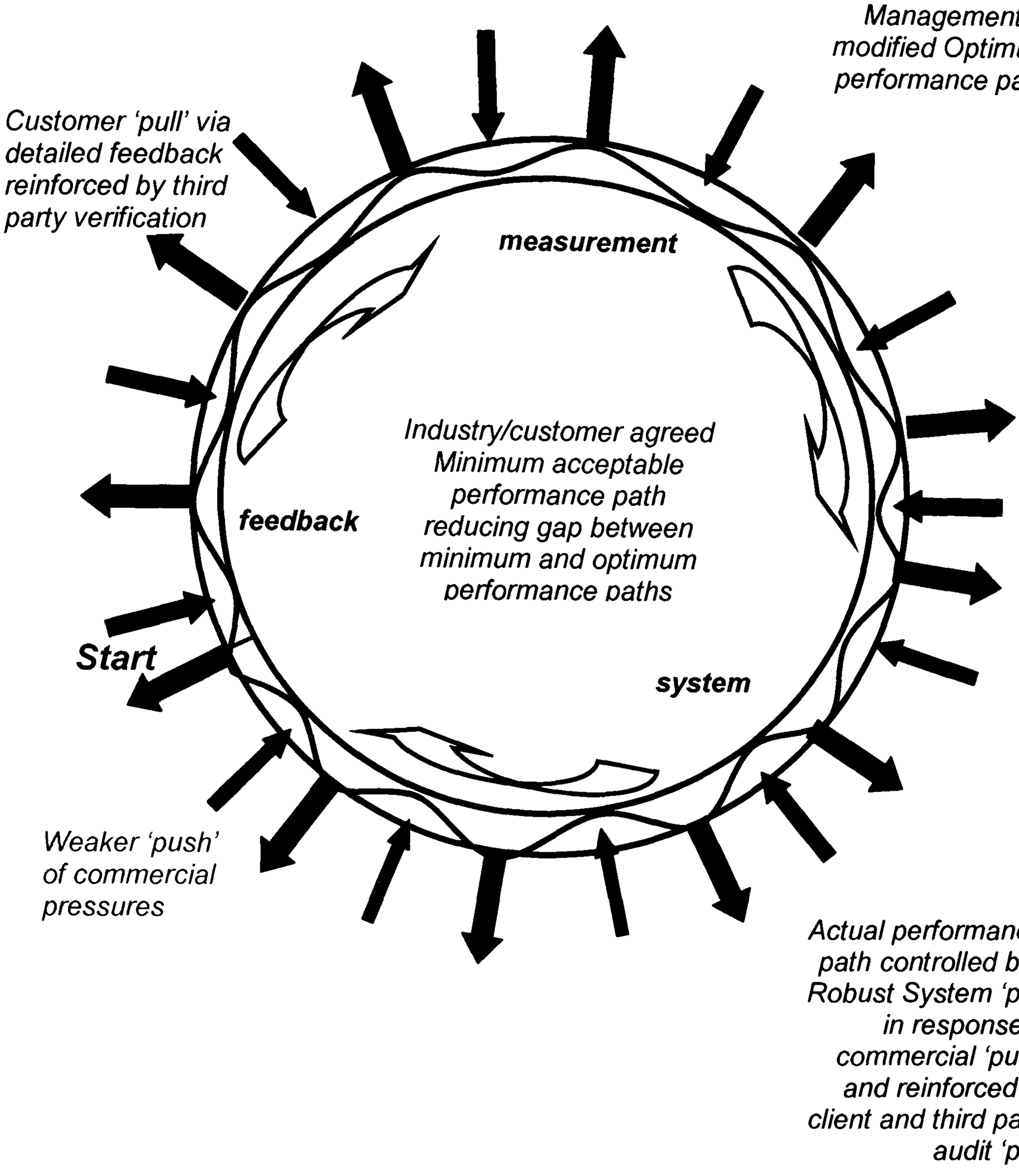
Model D is the Mace model, in this the company establishes the customer requirements at the outset and modifies their system so that it can deliver the customer requirements and monitors performance through customer feedback ensuring that the actual performance path is closer to the optimum performance path than the private house building company achieved.

The difference between models D & E, is that Estridge themselves set the level of the optimum performance path to match what they know their system is capable of delivering. This is not to say that it is artificially low, in the opinion of the author of this thesis, who has many years experience in the UK private housebuilding industry, the Estridge standards are as high if not higher than any he has seen in the UK housebuilding industry. Model E is the closest of all the models in achieving 97% customer satisfaction, the robust feedback process employed by Estridge may allow them to achieve their goal of *100% totally enthused customers*.

Finally the research has produced a new quality theory for the UK private housebuilding industry and this has given rise to conceptual model F. The new quality theory is that if the UK housebuilding companies and consumer groups could agree a set of achievable finishes performance criteria such as the BAGI standards, adopt an impression management process in order to managing their customer's expectations to a deliverable level, put in place a robust management system to deliver these performance criteria in a consistent manner, the resulting customer satisfaction ratings would be high. They would have eliminated the factors that lead to cognitive dissonance affecting customer satisfaction ratings and thus produce a true reflection of the customer's satisfaction and therefore the quality achieved in private housing. Conceptual model F overleaf illustrates this theory.

The minimum acceptable performance path is now larger as it reflects the agreement between industry and customer. The gap between the minimum acceptable performance path and the optimum performance path is now smaller, there is still a gap to allow for continual improvement in standards and increasing customer requirements. The upper limit of this optimum performance path limits the customer's expectations from the outset.

Conceptual Model F



The use of impression management at the outset also ensures acceptance of the company as an expert and also signifies that the willingness of the customer to accept the modified optimum performance path. The actual performance path is controlled by a robust management system that can deliver the agreed minimum performance path consistently and achieve the optimum performance path for a reasonable percentage of the time, thus satisfying the Crosby TQM requirements in so far as reasonably practicable.

12.7 Scope and Application

All the pieces of the jigsaw are there, all that is currently lacking is the will on the part of one major housebuilder to step forward and commit itself to the process. It would initially be a commercial risk; the Estridge experience tells us that this is a long term commitment that involves costs initially and really only starts to pay back after five years. The UK company would have the Estridge model to use and thus would not be starting from a flat start, they could have the scheme up and running in two years and therefore reach the break even point earlier than Estridge did. In the opinion of the author of this thesis, this is the time for one of the major housebuilders to make this step, they are all currently experiencing high demand and thus profits are at a peak. They are thus able to devote some of these profits into funding this type of scheme without serious damage to their current profitable position. Interest rates that have been at an historical low are now begin to rise, prices will not be so buoyant and housebuilders will have to work harder to sell their houses. This transparent commitment to quality and its delivery would be a selling point, which the rest of the major companies would not be able to ignore. The company that is first to make the step would always be that step in front of the others and by using suitable marketing tools would become the market leader and potentially be more successful.

The major stumbling block would be to convince the board of the company that it would be worth the initial cost to invest in the company's long terms future and profitability. Where Estridge is at an advantage in this respect is that the CEO is a builder, and he is fiercely proud of his name, which is also the company name, thus he wants Estridge to mean quality/customer satisfaction. What is required in the UK is for one of the major housebuilders, or a medium sized regional housebuilder who is in direct competition with the major housebuilders being prepared to take this step and establish their own IM based system.

One thing that has been shown by the trend of the three HF/MORI surveys completed to date is that the house buying public have and will continue to become more demanding and discerning. The trend is becoming more apparent with each set of results; it is inconceivable that the housebuilding companies are now producing a worse product than they were when the first survey was conducted in 2000. These results do show a worsening in the levels of customer satisfaction with their new homes, and if the homes are not getting poorer in quality then the customers are becoming less willing to accept what they see as poor quality goods and services. If the aspects of cognitive dissonance that encourage customers to change their attitudes do weaken with the publication of more dissatisfied customer satisfaction survey results, it may be that the house buying customers will become so confident with their own personally derived quality criteria that they can no longer be convinced to change their attitudes to agree with the builders. This will the leave the housebuilders with a seemingly impossible task of satisfying 160,000 different sets of criteria per year assuming the current level of activity continues.

The housebuilding industry will therefore have to address the lack of criteria covering the finishes aspects of new houses as these have now been shown to be the most important aspects as far as the customers are concerned. It therefore makes good business sense to link the criteria to a system that manages the customer's expectations by implementing impression management techniques. This however, must not be done without the introduction of robust management processes and a company wide culture that will not accept any non-conformance to the agreed standards of the finished house even if it means that month and year-end figures are not achieved in order to deliver these agreed expectations.

Finally to return to one of the acknowledged quality gurus, Dr Deming, housebuilder's senior management need to take on board his words that only 15% of defects in an

end product are the fault of the operatives carrying out the work, and that 94% of all problems with end products stem from management problems. The criteria as discussed will eliminate the cognitive dissonance, the impression management will help to ensure that the criteria are agreed and achievable, but there has to be a will on the part of senior management to institute the quality culture from the top down with zero tolerance to be able to achieve real definable quality.

This research presents the opportunity further research into quality in new private housing based on the model and theory formulated. It also presents the opportunity for psychologists to investigate whether the effects of cognitive dissonance do in fact diminish with the publication of customer satisfaction surveys reporting that people are in fact dissatisfied. Does the publication of surveys showing levels of dissatisfaction actually help to reinforce the customers own cognition? Does it then suppress the alternative presented cognition resulting in the customer now not making the u-turn and rejecting the goods or in this case the house as being unsatisfactory? It further presents the management theorists with scope for research and investigation into how the use of Impression Management can limit the level of expectation of customers and what are the upper and lower limits of the effect?

CHAPTER 13 - CONCLUSIONS

13.1 Introduction

This research project set out to investigate the level of achievement of quality in new build UK private housing with the aim of answering the question why in the UK private housing sector does the buyer not get the quality of new home they want by? This aim was then further refined into four specific research objectives. Firstly to assess the level of quality achieved by the UK house building industry from the point of view of the customer. Secondly to establish the basis for a set of customer derived criteria for the assessment of the quality of the completed house. Thirdly to produce some conceptual models that demonstrate the construction processes and show the factors that affect the achievement of acceptable levels of quality. Finally to investigate what lessons could be learned from other sectors and academic disciplines in how they have dealt with quality, its definition its delivery.

This set of objectives along with the research question has given rise to the following three final hypothesises: -

i. That the UK private house building industry knows about the problem but due to the buoyant nature of the domestic market chooses not to investigate the flawed systems used to produce the houses, thus doing nothing about the problem.

ii. That the UK private housing industry and others involved in quality measurement were asking technically based questions without ensuring that the interviewees had common ground with the interviewers on the basis for and language used in the questions asked.

iii. That high levels of customer satisfaction and thus definable quality can be achieved by the industry firstly investigating what it is that their customers want and then by implementing these customer derived criteria through a

robust management system to deliver on these criteria in the final finished product.

This chapter will confirm that the research objectives been achieved and that the three hypothesises have been proven

13.2 Assessing Levels of Quality Achieved

The research has considered the fact that due to the customer's subjective views on quality, customer satisfaction ratings will be affected and thus the representational nature of any customer satisfaction survey has been brought into question. The lack of accepted finishings criteria resulting in customers implementing their own individual subjective personally defined quality criteria, which according to Festinger (1957) is producing the textbook situation for *cognitive dissonance* to occur?

The research has shown that there are major areas of dissatisfaction in new private housing that are perhaps hidden by the large overall percentage as claimed by HF/MORI. The research has identified the main aspect of new private housing that causes the most concern to the customer is the standard of finishes achieved in their new house. It has also found that the customer's perception is that the inspection regimes of such as the NHBC are not as robust as they have been led to believe.

The research suggests that the individual element customer satisfaction percentages are a truer representation of customer satisfaction and thus quality.

13.3 Establishing the Basis for a Set of Customer Derived Criteria

The research has confirmed the Crosby rule of quality management: *"Quality has to be defined as conformance to requirements, not goodness"* Crosby (1984), as being the

only way to define measurable quality. The research has also identified that in order to measure the quality of goods or services the only reliable measurement method that an organisation has available to it is to measure conformance to customer requirements, (and thus customer satisfaction). It has highlighted the lack of a consistent set of finishings criteria by which the customers can assess the product and service given by the builder. It has shown that where definite criteria are absent, then the customers create their own widely differing sets of criteria often different from those of the builder providing the setting for cognitive dissonance to occur and thus skew customer satisfaction surveys.

The Large Scale Survey has produced the basis for a customer-derived set of criteria that could be used to eliminate this problem of many different sets of criteria and thus the basis for cognitive dissonance to occur.

13.4 Conceptual Models

Six main conceptual models have been developed during the course of the research, Model A directly from the literature, Models B - F from work undertaken in this project. The models do present a good visual representation of how the different systems work or not as the case may be. Conceptual models C, D and E have been derived from the case studies and the literature, and have helped to develop the theory that has led to the final conceptual Model F. W orking in this way the interviews and surveys, the models and the case studies have been melded together to produce the final transferable theory that would deliver sustainable higher levels of customer satisfaction and thus quality in UK new private house building. The final Model F demonstrates the new theory of achievable quality for the UK private house building industry.

13.5 Lessons from Other Sectors and Academic Disciplines

As Kristensen et al. (2000) and others have found in such as the Danish Postal System, the overall customer satisfaction/quality of an item or service is a composite of *hard ware* (performance, actual measurable outcomes – *hard issues*) and *human ware*, (the attitude, expectation and perception of the product or service by the user - *soft issues*), and these two areas are interlinked, the impact from each area varies according to situation.

The UK housebuilding industry appears to behave as a cross between a consumer goods manufacturer, a service provider and a builder, and thus the quality strategies used by these types of industry are all only a partial fit for the UK house building industry. Some of these strategies were a straightforward fit some not, some it would seem due to absence of literature had not been applied in this setting previously. This concept of *fit* or not in this case refers to the fact that the customer satisfaction strategy employed by an industry is generally in the form of a complete package of measures.

The measures are interrelated, forming checks and balances and when one aspect is missing or out of agreed tolerance then the whole system goes out of balance and thus will reject the product or service as being non-conforming to customer requirements. With the hybrid nature of the housebuilding industry, the strategy (complete package of measures) from such as the commercial construction industry would be impossible to implement, as would the other industry strategy.

This is where the psychological concept of impression management fits in to the equation; it can eliminate the factors that lead to the setting up of a situation where cognitive dissonance can occur. By the skilful use of impression management Estridge Homes has been shown to achieve high levels of customer satisfaction.

13.6 Hypothesis i.

The industry does know about the problem, Mills in the HouseBuilder Magazine in October 2000 said that the attitude of the housebuilding industry was *"indicative of a general insularity and myopia within the industry – many housebuilders subscribe to the view that 'We know what the punter wants, so why pay somebody to tell us what we already know?'"* Mills (2000) There has been a distinct lack of research done to date on the problems of quality and the new private housebuilding industry. There are systems in place in many house building companies, but not robust systems that reflect any degree of customer feedback and are subject to the commercial pressures of delivering numbers of completions per fiscal year which tend to override the weak management systems that are in place.

Thus, hypothesis i. is proven.

13.7 Hypothesis ii.

The research shows that this is still and ongoing process with surveys such as HF/MORI. The Large Scale Survey used customer-based criteria from the interviews and demonstrated that there is widespread dissatisfaction with elements such as finishes. The research demonstrates that if the statements used in the large-scale survey were used to form the basis for quality criteria then questions that had the same meaning to both interviewer and interviewee would be possible. This would ensure that in so far as possible the questions would have the same meaning to all the interviewees and thus the answers could be statistically analysed with more confidence that they are truly representative.

Thus, hypothesis ii. is proven

13.8 Hypothesis iii.

The final hypothesis concerned the achievement of high levels of customer satisfaction; this has been proven by the Estridge case study. The UK industry needs to address the lack of knowledge about what the house buying public think is important and set out industry wide deliverable criteria and implement robust systems to deliver these criteria. The UK private housing industry will then by using impression management techniques be able to achieve the same high levels of customer satisfaction as Estridge confident that the results of any customer satisfaction surveys are not affected by cognitive dissonance.

Thus, hypothesis iii. is proven.

13.9 Contribution to Knowledge

This project has to some degree addressed the lack of research undertaken in the UK private house building sector. It may now encourage other researchers to look at this sector of the industry and see that there is scope for further research.

It has identified that there is a lack of clearly defined quality criteria relating to finishes that are accepted by both the industry and the customers. It has provided well founded explanations for the problems and potential problems that arise form this lack of accepted criteria. In order to overcome this problem the research has identified and tested twenty customer-derived statements that customers consider to be critically or very important to them in the new house buying experience. These statements could be used to form the basis of a set of performance criteria not just for finishes, but the whole new house buying experience.

The research has identified that there is a difference of perception in what is important to the house builders and what is important to their customers. The house builders consider that the structure is the most important aspect, whilst the customers consider

the finishings aspect to the most important. The customers do not worry about the structure; they assume that the structure of their new house has been inspected during construction by the Local Authority Building Control section, the NHBC/Zurich or both. It has identified that house builders are not meeting the expectations of their customers in terms of finishings and completeness of house prior to handover.

The research has considered the psychological concepts of Cognitive Dissonance and Impression Management and applied them to this industry. Cognitive Dissonance has provided an explanation for the high levels of overall customer satisfaction obtained in surveys that seems to be at variance with individual element ratings. Impression Management has provided the basis for a management system that when used with a set of accepted performance criteria has been shown to deliver high levels of customer satisfaction.

This research has culminated in a new quality theory for the UK private house building industry, Conceptual model F illustrates this theory.

High levels of customer satisfaction can be achieved on a consistent basis in the UK private house building industry by adopting Impression Management techniques; an agreed set of customer derived criteria; implementing a zero tolerance management system to any deviation from the agreed set of performance criteria and a robust customer feedback system. This will then ensure that Cognitive Dissonance will not skew any survey results significantly and result in replicable and thus accurate levels of customer satisfaction measurement.

Appendix A

Formative Survey Pro-forma; page 1 of 2

QUALITY QUESTIONNAIRE

Please tick the box that most accurately describes your response to the question or statement.

Is this your first new house ? **yes** ☐ **no** ☐

If not how many new houses have you previously owned ? ☐

Please circle the response that you agree with most strongly:-

How happy are you with overall quality of this house ?

completely happy | *moderately happy* | *satisfied* | *slightly unhappy* | *very unhappy*

How do you rate the quality of the brick/stone work ? *excellent:* *good:* *average:* *poor:* *very poor*

How do you rate the quality of the roofing work ? *excellent:* *good:* *average:* *poor:* *very poor*

How do you rate the quality of the external joinery, windows and doors ? *excellent:* *good:* *average:* *poor:* *very poor*

How do you rate the quality of the internal fixtures and fittings, kitchen units, sanitary ware ? *excellent:* *good:* *average:* *poor:* *very poor*

How do you rate the quality of the internal finishings, plasterwork, skirtings, architraves, doors and stairs ? *excellent:* *good:* *average:* *poor:* *very poor*

How do you rate the quality of the decoration ? *excellent: good: average: poor: very poor*

How do you rate the quality of the electrical system ? *excellent: good: average: poor: very poor*

How do you rate the quality of the heating and ventilation system ? *excellent: good: average: poor: very poor*

How do you rate the quality of the paths, drives, gardens and fencing? *excellent: good: average: poor: very poor*

Based on these ratings would you buy another house from this builder ? **yes** ☐ **no** ☐

If you have rated any item less than average please give your reasons

How would you rate your overall treatment by the company's sales staff ? *excellent: good: average: poor: very poor*

How would you rate your overall treatment by the company's site staff ? *excellent: good: average: poor: very poor*

How would you rate the company's aftersales service ? *excellent: good: average: poor: very poor*

If there is any further information that you would like to give, please continue on the back of this sheet.

Thank you.

Appendix B.1

Semi Structured Interview Pro-forma; page 1 of 3

Tony Auchterlounie

PhD – *Quality in New Housi*

Structured Interview Pro-Forma: -

Interview Ref No……

Is this your 1st new house?

Yes/no

How many have you owned previously?

……no.

How does this house compare with the previous one/s?

Better; not quite as good; same; not as good; nowhere near as good

What attracted you buy this house?

Builder
Location
Size
Features
Layout
Other

How long have you been in the house, and how is it living up to expectations?

……months/years well; just about; poorly;

How long do you expect certain items such as i-windows; ii-doors; iii-initial decoration; iv-kitchen units; v-heating systems to last?

i-
ii-
iii-
iv-
v-
other

How much snagging did you do prior to moving in?

Was everything completely finished when you moved in?

Yes/no

If not, what was unfinished and who finished them off?

Builder; *owner;*

How did the builder deal with any problems?

Well; *reasonably well;* *acceptably;* *not very well;* *poorly;*

Can you give an example of the type of problem?

Do you have confidence in: - i- the builder; ii- the product; iii- his site staff; iv- sales staff; v- after sales staff?

i- *ii-* *iii-* *iv-* *v-*

There are nine elements of a new house on the cards. Which ones are the most importance to you? (A= most important – I= least important)

1- *2-* *3-* *4-* *5-* *6-* *7-* *8-* *9-*

Why? And what do you understand by each of the titles on the cards?

1 2

3 4

5 6

7 8

9

Which of these 13 pictures of brickwork do you find acceptable(A), and which do you find un-acceptable(B)?

1- *2-* *3-* *4-* *5-* *6-* *7-* *8-* *9-* *10-* *11-* *12-* *13-*

Why?

How does this house rate against such as your car in terms of acceptable build quality?

Tony Auchterlounie

PhD – *Quality in New Housing*

Interview Ref No.....

What do you think are the ingredients that in your mind would make a good quality house?

Do you consider a house to be an investment or just somewhere to live.

Investment; *Home;* *Investment and home;* *Home and investment;*

What do you know about your structural warranty?

NHBC/ZURICH

A lot; *a reasonable amount;* *some;* *very little;*

What were you told by the sales staff when you were buying the house that warranty covered?

Which of the following items do you think are covered by the 1-2 year part and the 3-10 year part of the NHBC warranty?

Would you be prepared to pay more for a more comprehensive warranty that had guaranteed stage inspections and a log book, perhaps with inspectors comments?

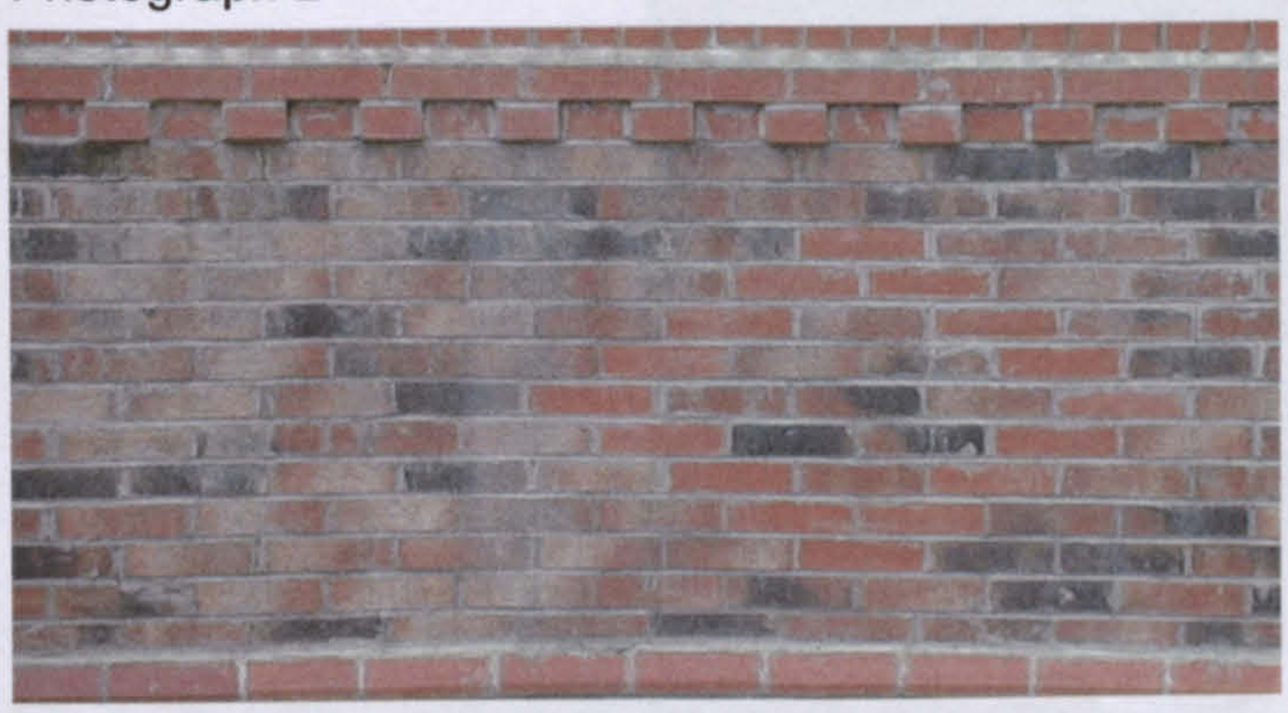
What would you like it to cover?

Appendix B.2

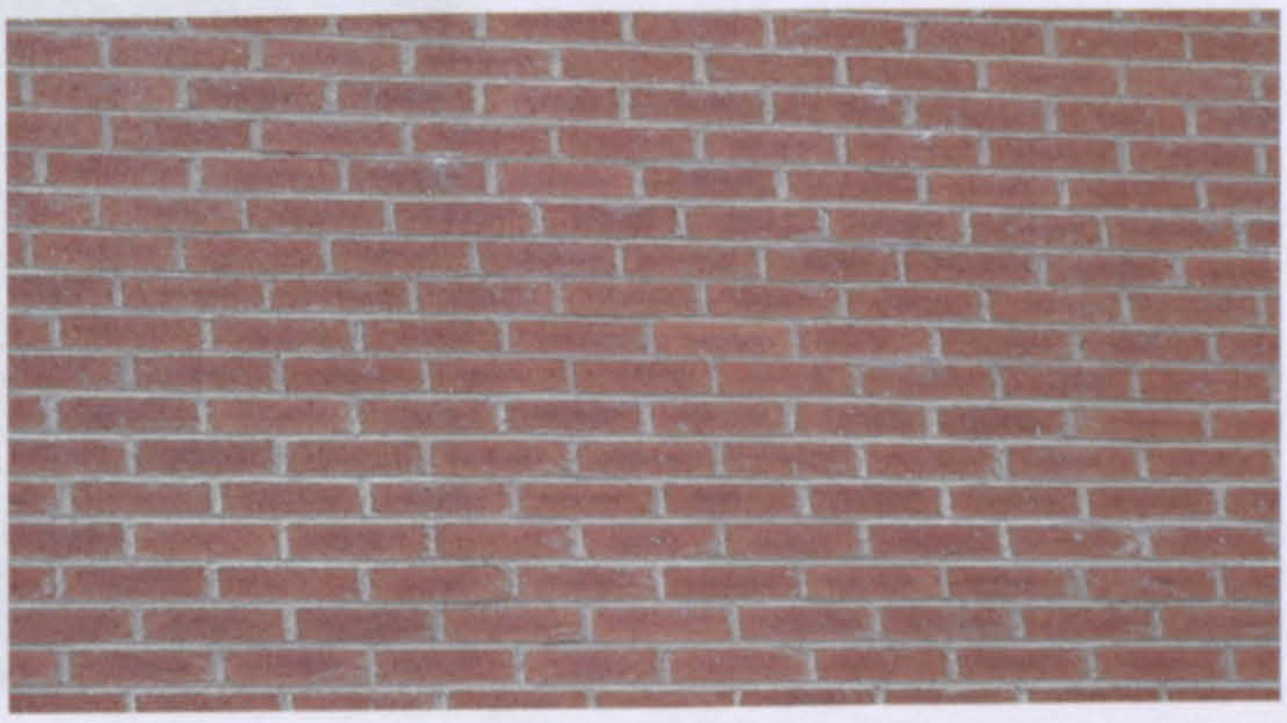
Photographs of brickwork used in interviews; page 1 of 4

Photograph 1

Photograph 2



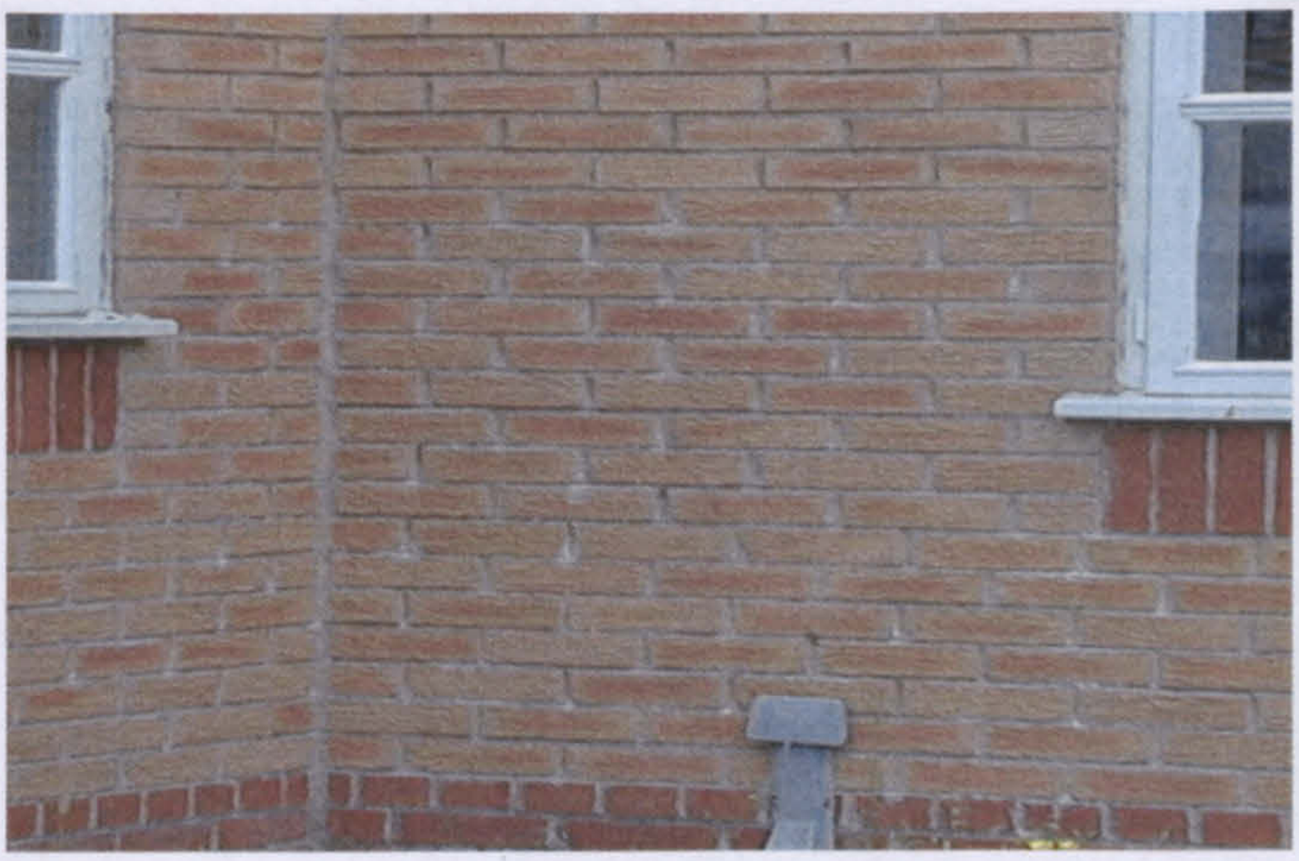
Photograph 3



Photograph 4

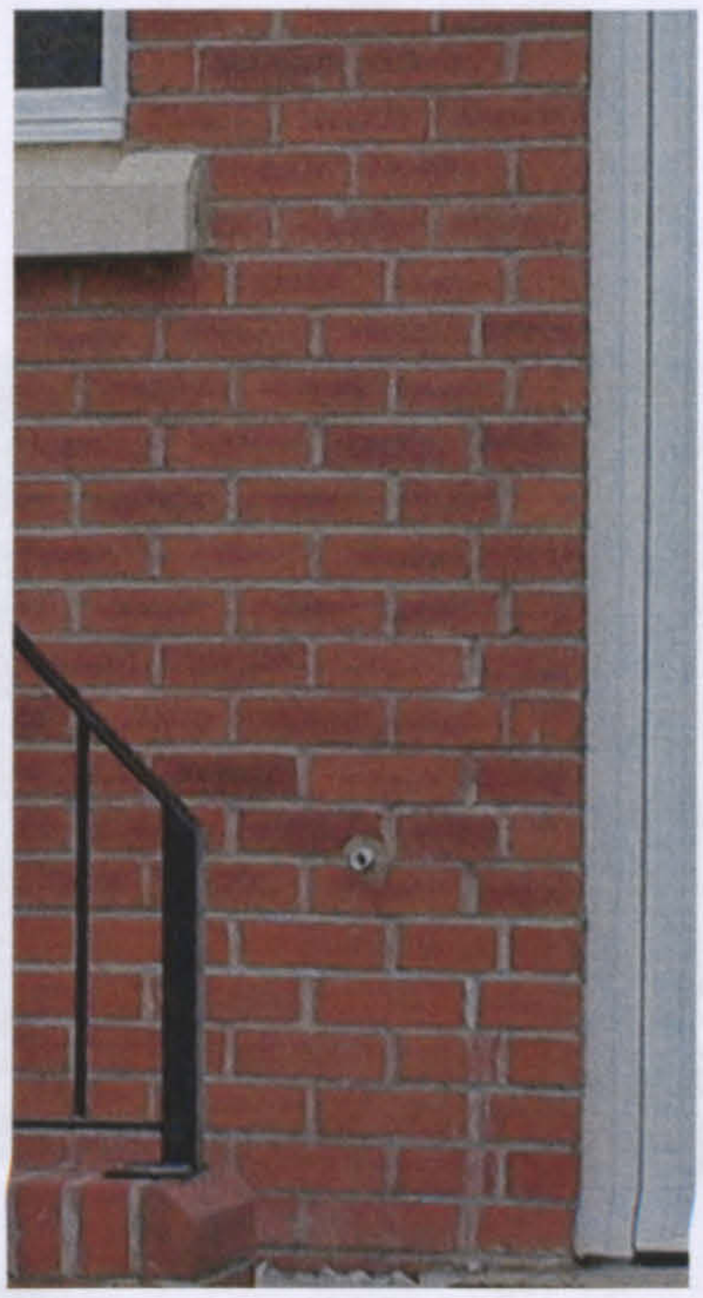
Photograph 5

Photograph 6



Photograph 7

Photograph 8



Photograph 9

Photograph 10

Photographs of brickwork used in interviews; page 4 of 4

Photograph 11

Photograph 12

Photograph 13

BOLTON INSTITUTE

Quality in New Housing

This questionnaire is designed to identify and measure the importance of the aspects of a new home with which customers are most concerned. Customer opinion forms the central issue in this research, and this questionnaire seeks to investigate on a larger scale the opinions and concerns raised by new home owners on previous questionnaires and in semi-structured interviews.

We invite you to respond to the statements overleaf, giving your opinion on both their importance to yourselves and the degree to which you feel that they were achieved or influenced the level of customer satisfaction in your new home. Shown below is the key to the ranking of the response boxes that appear within the questionnaire.

It is vital to our research that you express an opinion on both the importance and expectations for each of the statements. Please mark the most appropriate response box at each side of the statement with a tick.

Importance

1	4	7	10
Not Important	Quite Important	Very Important	Critically Important

Expectations

1	4	7	10
Failed to meet	Partially Failed to meet	Meeting	Exceeding

It would be useful if you indicated at the end of the questionnaire how many new homes you have previously owned and how long it is since you moved into your new home. There is also a section at the end of the questionnaire that asks if you recorded a '1' against any statement, to indicate briefly why.

There is also space for you to record any quality issue that you think is important and that this questionnaire does not cover.

Additional Information

Please indicate how many previous new homes you have owned:

0 ☐ 1 ☐ 2 ☐ 3 ☐ more than 3 ☐

How long is it since you moved in? years ☐ months ☐

Please briefly indicate the reasons for recording a '1' score below. Please also feel free to indicate any other issues related to quality in new homes that you wish to highlight that you do not feel are addressed on this questionnaire:

Thank you for your help in completing this questionnaire,
Tony Auchterlounie, Bolton Institute, Deane Road, Bolton BL3 5AB.
Telephone 01204-903026. e-mail aca1@bolton.ac.uk

Importance 1 4 7 10	Statement	Expectations 1 4 7 10
□□□□	The builder achieved a pleasing appearance to the outside of your new home.	□□□□
□□□□	The structural work on your new home was inspected at important stages by external agencies.	□□□□
□□□□	The sales team generally passed on all information about your option and colour choices to the build team.	□□□□
□□□□	The build team ensured that your new home included all of your options and choices.	□□□□
□□□□	The builder ensured that there were no obvious outstanding items of work prior to your final inspection.	□□□□
□□□□	The builder gave you adequate opportunity to inspect your new home before being asked to legally complete and move in.	□□□□
□□□□	You felt that your new home was fully completed when you moved in.	□□□□
□□□□	The builder dealt with your problems promptly and efficiently after you moved in.	□□□□
□□□□	The show house standards were at least matched if not bettered in your new home.	□□□□
□□□□	Your new home was clean when you moved in.	□□□□

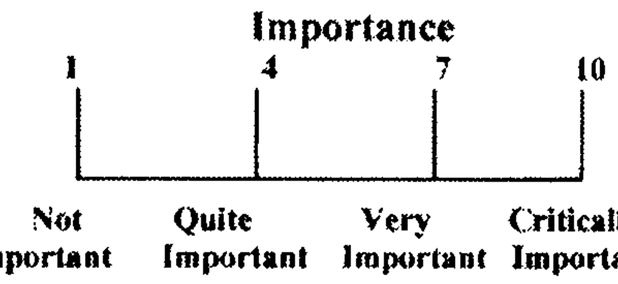
Importance 1 4 7 10	Statement	Expectations 1 4 7 10
□□□□	That the house has a structural warranty and that the level of cover was fully explained to you.	□□□□
□□□□	All the controls and design features of your new home were explained to you when you moved in.	□□□□
□□□□	The plaster walls in the house are smooth and flat.	□□□□
□□□□	The internal woodwork was adequately filled and sanded before painting.	□□□□
□□□□	The design of the heating system provides a level of warmth, which enables you to use all of the rooms as intended.	□□□□
□□□□	A good standard of 'fit' to the units and the tiling in the kitchen.	□□□□
□□□□	The achievement of a good standard of finish in bathrooms.	□□□□
□□□□	You found that the overall home buying experience was problem free.	□□□□
□□□□	Your new home is energy efficient, ensuring lower running costs.	□□□□
□□□□	Your new home is constructed using low maintenance components.	□□□□

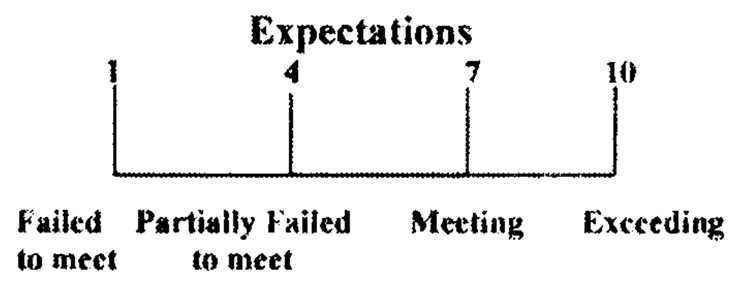
Quality Questionnaire

This questionnaire is part of a research project that is designed to identify and measure quality related issues in the private house building industry. Customer opinion on quality issues forms the central issue in this research. This questionnaire seeks to investigate further the opinions and concerns raised by new home owners on previous questionnaires and in semi-structured interviews. The sample has ranged from owners of houses 2 months old up to 10 years old.

We therefore invite you to respond to the following statements giving your opinion on both their importance to yourselves and the degree to which they were achieved in your new home. These responses will be used purely for research into quality issues and will remain anonymous. It would be useful, however if you indicated at the end of the questionnaire how many new homes you have previously owned and how long it is since you moved into your new home.

There is a section at the end of the questionnaire that asks if you recorded a '1' against any statement, to indicate briefly why. This section is also available for you to record any quality issue in new housing that you think is important that this questionnaire does not cover.





It is vital to our research that you express an opinion on both the importance and expectations regarding the following statements. Please mark the most appropriate response box at each side of the statement with a tick.

Importance 1	4	7	10	Statement	Expectations 1	4	7	10
☐	☐	☐	☐	The builder achieved a pleasing appearance to the outside of your new home.	☐	☐	☐	☐
☐	☐	☐	☐	The structural work on your new home was inspected at important stages by external agencies.	☐	☐	☐	☐
☐	☐	☐	☐	The sales team generally passed on all information about your option and colour choices to the build team.	☐	☐	☐	☐
☐	☐	☐	☐	The build team ensured that your new home included all of your options and choices.	☐	☐	☐	☐
☐	☐	☐	☐	The builder ensured that there were no obvious outstanding items of work prior to your final inspection.	☐	☐	☐	☐
☐	☐	☐	☐	The builder gave you adequate opportunity to inspect your new homes before being asked to legally complete and move in.	☐	☐	☐	☐
☐	☐	☐	☐	You felt that your new home was fully completed when you moved in.	☐	☐	☐	☐
☐	☐	☐	☐	The builder dealt with your problems promptly and efficiently after you moved in.	☐	☐	☐	☐

Importance	Statement	Expectations
1 4 7 10		1 4 7 10
☐ ☐ ☐ ☐	The show house standards were at least matched if not bettered in your new home.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	Your new home was clean when you moved in.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	The structural warranty and its scope were fully explained to you.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	All the controls and design features of your new home were explained to you when you moved in.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	The plaster walls in the house are smooth and flat.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	The internal woodwork was adequately filled and sanded before painting.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	The design of the heating system provides a level of warmth, which enables you to use all of the rooms as intended.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	A good standard of 'fit' to the units and the tiling in the kitchen.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	The achievement of a good standard of finish in bathrooms.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	You found that the overall home buying experience was problem free.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	Your new home is energy efficient, ensuring lower running costs.	☐ ☐ ☐ ☐
☐ ☐ ☐ ☐	Your new home is constructed using low maintenance components.	☐ ☐ ☐ ☐

Please indicate how many previous new homes you have owned: 0 ☐ 1 ☐ 2 ☐ 3 ☐ more than 3 ☐

How long is it since you moved in? years ☐ months ☐

Please indicate the reasons for recording a '1' score below. Please also feel free to indicate any other areas related to quality in new homes that you wish to highlight:

Thank you for your help in completing this questionnaire, Tony Auchterlounie, Bolton Institute, Deane Road, Bolton BL3 5AB. Telephone 01204-903026. e-mail aca1@bolton.ac.uk

Appendix D

SPSS tables - Formative Survey: page 1 of 10
Frequencies

Overall quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	completely happy	7	6.2	6.2	6.2
	moderately happy	41	36.3	36.3	42.5
	satisfied	34	30.1	30.1	72.6
	slightly unhappy	23	20.4	20.4	92.9
	very unhappy	8	7.1	7.1	100.0
	Total	113	100.0	100.0	
Total		113	100.0		

repeat sales

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	72	63.7	63.7	63.7
	no	39	34.5	34.5	98.2
	unsure/no response	2	1.8	1.8	100.0
	Total	113	100.0	100.0	
Total		113	100.0		

aftersales service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	excellent	1	.9	.9	.9
	good	22	19.5	19.5	20.4
	average	36	31.9	31.9	52.2
	poor	22	19.5	19.5	71.7
	very poor	24	21.2	21.2	92.9
	not applicable	7	6.2	6.2	99.1
	too soon to comment	1	.9	.9	100.0
	Total	113	100.0	100.0	
Total		113	100.0		

Cross-tabulations

Overall quality * new house Crosstabulation

			new house		
			1st new house	not 1st new house	Total
Overall quality	completely happy	Count	4	3	7
		% of Total	3.5%	2.7%	6.2%
	moderately happy	Count	25	16	41
		% of Total	22.1%	14.2%	36.3%
	satisfied	Count	22	12	34
		% of Total	19.5%	10.6%	30.1%
	slightly unhappy	Count	16	7	23
		% of Total	14.2%	6.2%	20.4%
	very unhappy	Count	4	4	8
		% of Total	3.5%	3.5%	7.1%
Total		Count	71	42	113
		% of Total	62.8%	37.2%	100.0%

Overall quality * aftersales service Crosstabulation

			aftersales service							
			excellent	good	average	poor	very poor	not applicable	too soon to comment	Total
Overall quality	completely happy	Count	1	2	3		1			7
		% of Total	.9%	1.8%	2.7%		.9%			6.2%
	moderately happy	Count		11	16	10	2	1	1	41
		% of Total		9.7%	14.2%	8.8%	1.8%	.9%	.9%	36.3%
	satisfied	Count		3	8	7	12	4		34
		% of Total		2.7%	7.1%	6.2%	10.6%	3.5%		30.1%
	slightly unhappy	Count		6	6	5	4	2		23
		% of Total		5.3%	5.3%	4.4%	3.5%	1.8%		20.4%
	very unhappy	Count			3		5			8
		% of Total			2.7%		4.4%			7.1%
Total		Count	1	22	36	22	24	7	1	113
		% of Total	.9%	19.5%	31.9%	19.5%	21.2%	6.2%	.9%	100.0%

Overall quality * repeat sales Crosstabulation

			repeat sales			
			yes	no	unsure/no response	Total
Overall quality	completely happy	Count	7			7
		% of Total	6.2%			6.2%
	moderately happy	Count	37	2	2	41
		% of Total	32.7%	1.8%	1.8%	36.3%
	satisfied	Count	22	12		34
		% of Total	19.5%	10.6%		30.1%
	slightly unhappy	Count	5	18		23
		% of Total	4.4%	15.9%		20.4%
	very unhappy	Count	1	7		8
		% of Total	.9%	6.2%		7.1%
Total		Count	72	39	2	113
		% of Total	63.7%	34.5%	1.8%	100.0%

Cross-tabulations

Overall quality * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
Overall quality	completely happy	Count	3			4	7
		% of Total	2.7%			3.5%	6.2%
	moderately happy	Count	13		3	25	41
		% of Total	11.5%		2.7%	22.1%	36.3%
	satisfied	Count	8	2	2	22	34
		% of Total	7.1%	1.8%	1.8%	19.5%	30.1%
	slightly unhappy	Count	6			17	23
		% of Total	5.3%			15.0%	20.4%
	very unhappy	Count	3	1		4	8
		% of Total	2.7%	.9%		3.5%	7.1%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

Overall quality * rating sales Crosstabulation

			rating sales						
			excellent	good	average	poor	very poor	not applicable	Total
Overall quality	completely happy	Count	3	1	3				7
		% of Total	2.7%	.9%	2.7%				6.2%
	moderately happy	Count	2	22	13	2	1	1	41
		% of Total	1.8%	19.5%	11.5%	1.8%	.9%	.9%	36.3%
	satisfied	Count	3	11	13	2	1	4	34
		% of Total	2.7%	9.7%	11.5%	1.8%	.9%	3.5%	30.1%
	slightly unhappy	Count	4	6	8	1	1	3	23
		% of Total	3.5%	5.3%	7.1%	.9%	.9%	2.7%	20.4%
	very unhappy	Count		3	2	3			8
		% of Total		2.7%	1.8%	2.7%			7.1%
Total		Count	12	43	39	8	3	8	113
		% of Total	10.6%	38.1%	34.5%	7.1%	2.7%	7.1%	100.0%

Overall quality * rating site Crosstabulation

			rating site						
			excellent	good	average	poor	very poor	not applicable	Total
Overall quality	completely happy	Count	2	1	4				7
		% of Total	1.8%	.9%	3.5%				6.2%
	moderately happy	Count	5	13	20	1	1	1	41
		% of Total	4.4%	11.5%	17.7%	.9%	.9%	.9%	36.3%
	satisfied	Count	1	6	10	7	6	4	34
		% of Total	.9%	5.3%	8.8%	6.2%	5.3%	3.5%	30.1%
	slightly unhappy	Count	2	7	5	4	2	3	23
		% of Total	1.8%	6.2%	4.4%	3.5%	1.8%	2.7%	20.4%
	very unhappy	Count		4	3	1			8
		% of Total		3.5%	2.7%	.9%			7.1%
Total		Count	10	31	42	13	9	8	113
		% of Total	8.8%	27.4%	37.2%	11.5%	8.0%	7.1%	100.0%

Cross-tabulations

Overall quality * roofing Crosstabulation

			roofing					
			excellent	good	averge	poor	very poor	Total
Overall quality	completely happy	Count	2	5				7
		% of Total	1.8%	4.4%				6.2%
	moderately happy	Count	10	27	4			41
		% of Total	8.8%	23.9%	3.5%			36.3%
	satisfied	Count	4	18	10	2		34
		% of Total	3.5%	15.9%	8.8%	1.8%		30.1%
	slightly unhappy	Count		10	11	2		23
		% of Total		8.8%	9.7%	1.8%		20.4%
	very unhappy	Count	1	2	3	1	1	8
		% of Total	.9%	1.8%	2.7%	.9%	.9%	7.1%
Total		Count	17	62	28	5	1	113
		% of Total	15.0%	54.9%	24.8%	4.4%	.9%	100.0%

Overall quality * brick/stonework Crosstabulation

			brick/stonework					
			excellent	good	average	poor	very poor	Total
Overall quality	completely happy	Count	3	4				7
		% of Total	2.7%	3.5%				6.2%
	moderately happy	Count	10	27	3	1		41
		% of Total	8.8%	23.9%	2.7%	.9%		36.3%
	satisfied	Count	1	21	10	2		34
		% of Total	.9%	18.6%	8.8%	1.8%		30.1%
	slightly unhappy	Count		11	10	2		23
		% of Total		9.7%	8.8%	1.8%		20.4%
	very unhappy	Count	1	2	2	1	2	8
		% of Total	.9%	1.8%	1.8%	.9%	1.8%	7.1%
Total		Count	15	65	25	6	2	113
		% of Total	13.3%	57.5%	22.1%	5.3%	1.8%	100.0%

Overall quality * internal finishes Crosstabulation

			internal finishes					
			excellent	good	average	poor	very poor	Total
Overall quality	completely happy	Count	1	3	3			7
		% of Total	.9%	2.7%	2.7%			6.2%
	moderately happy	Count	2	12	22	5		41
		% of Total	1.8%	10.6%	19.5%	4.4%		36.3%
	satisfied	Count		5	18	9	2	34
		% of Total		4.4%	15.9%	8.0%	1.8%	30.1%
	slightly unhappy	Count		4	5	13	1	23
		% of Total		3.5%	4.4%	11.5%	.9%	20.4%
	very unhappy	Count		2	1	1	4	8
		% of Total		1.8%	.9%	.9%	3.5%	7.1%
Total		Count	3	26	49	28	7	113
		% of Total	2.7%	23.0%	43.4%	24.8%	6.2%	100.0%

Cross-tabulations

Overall quality * heating and ventilation Crosstabulation

			heating and ventilation					
			excellent	good	average	poor	very poor	Total
Overall quality	completely happy	Count	1	5	1			7
		% of Total	.9%	4.4%	.9%			6.2%
	moderately happy	Count	8	21	8	4		41
		% of Total	7.1%	18.6%	7.1%	3.5%		36.3%
	satisfied	Count	2	18	12	1	1	34
		% of Total	1.8%	15.9%	10.6%	.9%	.9%	30.1%
	slightly unhappy	Count	3	8	5	4	3	23
		% of Total	2.7%	7.1%	4.4%	3.5%	2.7%	20.4%
	very unhappy	Count	1	1	1	2	3	8
		% of Total	.9%	.9%	.9%	1.8%	2.7%	7.1%
Total		Count	15	53	27	11	7	113
		% of Total	13.3%	46.9%	23.9%	9.7%	6.2%	100.0%

Overall quality * paths drives and fences Crosstabulation

			paths drives and fences					
			excellent	good	average	poor	very poor	Total
Overall quality	completely happy	Count	2	2	3			7
		% of Total	1.8%	1.8%	2.7%			6.2%
	moderately happy	Count	3	10	16	10	2	41
		% of Total	2.7%	8.8%	14.2%	8.8%	1.8%	36.3%
	satisfied	Count		4	11	10	9	34
		% of Total		3.5%	9.7%	8.8%	8.0%	30.1%
	slightly unhappy	Count	1	3	5	9	5	23
		% of Total	.9%	2.7%	4.4%	8.0%	4.4%	20.4%
	very unhappy	Count	1			3	4	8
		% of Total	.9%			2.7%	3.5%	7.1%
Total		Count	7	19	35	32	20	113
		% of Total	6.2%	16.8%	31.0%	28.3%	17.7%	100.0%

Overall quality * windows and doors Crosstabulation

			windows and doors					
			excellent	good	average	poor	very poor	Total
Overall quality	completely happy	Count	1	3	3			7
		% of Total	.9%	2.7%	2.7%			6.2%
	moderately happy	Count	2	12	19	8		41
		% of Total	1.8%	10.6%	16.8%	7.1%		36.3%
	satisfied	Count	1	4	21	7	1	34
		% of Total	.9%	3.5%	18.6%	6.2%	.9%	30.1%
	slightly unhappy	Count			6	13	4	23
		% of Total			5.3%	11.5%	3.5%	20.4%
	very unhappy	Count		2		3	3	8
		% of Total		1.8%		2.7%	2.7%	7.1%
Total		Count	4	21	49	31	8	113
		% of Total	3.5%	18.6%	43.4%	27.4%	7.1%	100.0%

Cross-tabulations

Overall quality * electrical system Crosstabulation

			electrical system					Total
			excellent	good	average	poor	very poor	
Overall quality	completely happy	Count	2	3	2			7
		% of Total	1.8%	2.7%	1.8%			6.2%
	moderately happy	Count	7	28	4	1	1	41
		% of Total	6.2%	24.8%	3.5%	.9%	.9%	36.3%
	satisfied	Count	2	21	11			34
		% of Total	1.8%	18.6%	9.7%			30.1%
	slightly unhappy	Count	2	8	13			23
		% of Total	1.8%	7.1%	11.5%			20.4%
	very unhappy	Count	1		3	3	1	8
		% of Total	.9%		2.7%	2.7%	.9%	7.1%
Total		Count	14	60	33	4	2	113
		% of Total	12.4%	53.1%	29.2%	3.5%	1.8%	100.0%

Overall quality * decoration Crosstabulation

			decoration					Total
			excellent	good	average	poor	very poor	
Overall quality	completely happy	Count	1	3	3			7
		% of Total	.9%	2.7%	2.7%			6.2%
	moderately happy	Count		11	25	5		41
		% of Total		9.7%	22.1%	4.4%		36.3%
	satisfied	Count		6	20	6	2	34
		% of Total		5.3%	17.7%	5.3%	1.8%	30.1%
	slightly unhappy	Count	1	4	9	8	1	23
		% of Total	.9%	3.5%	8.0%	7.1%	.9%	20.4%
	very unhappy	Count		1	1	4	2	8
		% of Total		.9%	.9%	3.5%	1.8%	7.1%
Total		Count	2	25	58	23	5	113
		% of Total	1.8%	22.1%	51.3%	20.4%	4.4%	100.0%

decoration * ownership Crosstabulation

			ownership				Total
			1 previously owned	2 previously owned	3 or over previously owned	none	
decoration	excellent	Count				2	2
		% of Total				1.8%	1.8%
	good	Count	10	1		14	25
		% of Total	8.8%	.9%		12.4%	22.1%
	average	Count	17	2	4	35	58
		% of Total	15.0%	1.8%	3.5%	31.0%	51.3%
	poor	Count	4			19	23
		% of Total	3.5%			16.8%	20.4%
	very poor	Count	2		1	2	5
		% of Total	1.8%		.9%	1.8%	4.4%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

Cross-tabulations

electrical system * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
electrical system	excellent	Count	2		1	11	14
		% of Total	1.8%		.9%	9.7%	12.4%
	good	Count	20		3	37	60
		% of Total	17.7%		2.7%	32.7%	53.1%
	average	Count	8	2	1	22	33
		% of Total	7.1%	1.8%	.9%	19.5%	29.2%
	poor	Count	1	1		2	4
		% of Total	.9%	.9%		1.8%	3.5%
	very poor	Count	2				2
		% of Total	1.8%				1.8%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

windows and doors * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
windows and doors	excellent	Count			1	3	4
		% of Total			.9%	2.7%	3.5%
	good	Count	6	1	1	13	21
		% of Total	5.3%	.9%	.9%	11.5%	18.6%
	average	Count	16	2	3	28	49
		% of Total	14.2%	1.8%	2.7%	24.8%	43.4%
	poor	Count	9			22	31
		% of Total	8.0%			19.5%	27.4%
	very poor	Count	2			6	8
		% of Total	1.8%			5.3%	7.1%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

paths drives and fences * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
paths drives and fences	excellent	Count	2	1	1	3	7
		% of Total	1.8%	.9%	.9%	2.7%	6.2%
	good	Count	6	1		12	19
		% of Total	5.3%	.9%		10.6%	16.8%
	average	Count	11	1	1	22	35
		% of Total	9.7%	.9%	.9%	19.5%	31.0%
	poor	Count	8		2	22	32
		% of Total	7.1%		1.8%	19.5%	28.3%
	very poor	Count	6		1	13	20
		% of Total	5.3%		.9%	11.5%	17.7%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

Cross-tabulations

heating and ventilation * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
heating and ventilation	excellent	Count	2		1	12	15
		% of Total	1.8%		.9%	10.6%	13.3%
	good	Count	19	1	2	31	53
		% of Total	16.8%	.9%	1.8%	27.4%	46.9%
	average	Count	4	2	2	19	27
		% of Total	3.5%	1.8%	1.8%	16.8%	23.9%
	poor	Count	5			6	11
		% of Total	4.4%			5.3%	9.7%
	very poor	Count	3			4	7
		% of Total	2.7%			3.5%	6.2%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

internal finishes * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
internal finishes	excellent	Count	1			2	3
		% of Total	.9%			1.8%	2.7%
	good	Count	8	1	1	16	26
		% of Total	7.1%	.9%	.9%	14.2%	23.0%
	average	Count	15	2	3	29	49
		% of Total	13.3%	1.8%	2.7%	25.7%	43.4%
	poor	Count	7		1	20	28
		% of Total	6.2%		.9%	17.7%	24.8%
	very poor	Count	2			5	7
		% of Total	1.8%			4.4%	6.2%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

internal fixtures and fittings * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
internal fixtures and fittings	excellent	Count	3		1	4	8
		% of Total	2.7%		.9%	3.5%	7.1%
	good	Count	13	3	2	32	50
		% of Total	11.5%	2.7%	1.8%	28.3%	44.2%
	average	Count	13		2	27	42
		% of Total	11.5%		1.8%	23.9%	37.2%
	poor	Count	2			8	10
		% of Total	1.8%			7.1%	8.8%
	very poor	Count	2			1	3
		% of Total	1.8%			.9%	2.7%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

Cross-tabulations

brick/stonework * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
brick/stonework	excellent	Count	7		1	7	15
		% of Total	6.2%		.9%	6.2%	13.3%
	good	Count	18		3	44	65
		% of Total	15.9%		2.7%	38.9%	57.5%
	average	Count	7	2	1	15	25
		% of Total	6.2%	1.8%	.9%	13.3%	22.1%
	poor	Count	1			5	6
		% of Total	.9%			4.4%	5.3%
	very poor	Count		1		1	2
		% of Total		.9%		.9%	1.8%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

aftersales service * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
aftersales service	excellent	Count	1				1
		% of Total	.9%				.9%
	good	Count	8		1	13	22
		% of Total	7.1%		.9%	11.5%	19.5%
	average	Count	11	1	2	22	36
		% of Total	9.7%	.9%	1.8%	19.5%	31.9%
	poor	Count	6		1	15	22
		% of Total	5.3%		.9%	13.3%	19.5%
	very poor	Count	4	2	1	17	24
		% of Total	3.5%	1.8%	.9%	15.0%	21.2%
	not applicable	Count	3			4	7
		% of Total	2.7%			3.5%	6.2%
	too soon to comment	Count				1	1
		% of Total				.9%	.9%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

roofing * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
roofing	excellent	Count	4	1	2	10	17
		% of Total	3.5%	.9%	1.8%	8.8%	15.0%
	good	Count	18		2	42	62
		% of Total	15.9%		1.8%	37.2%	54.9%
	averge	Count	9	2	1	16	28
		% of Total	8.0%	1.8%	.9%	14.2%	24.8%
	poor	Count	2			3	5
		% of Total	1.8%			2.7%	4.4%
	very poor	Count				1	1
		% of Total				.9%	.9%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

Cross-tabulations

rating sales * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
rating sales	excellent	Count	4		1	7	12
		% of Total	3.5%		.9%	6.2%	10.6%
	good	Count	10	3	2	28	43
		% of Total	8.8%	2.7%	1.8%	24.8%	38.1%
	average	Count	14		1	24	39
		% of Total	12.4%		.9%	21.2%	34.5%
	poor	Count	2			6	8
		% of Total	1.8%			5.3%	7.1%
	very poor	Count			1	2	3
		% of Total			.9%	1.8%	2.7%
	not applicable	Count	3			5	8
		% of Total	2.7%			4.4%	7.1%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

rating site * ownership Crosstabulation

			ownership				
			1 previously owned	2 previously owned	3 or over previously owned	none	Total
rating site	excellent	Count	7		1	2	10
		% of Total	6.2%		.9%	1.8%	8.8%
	good	Count	7	1	2	21	31
		% of Total	6.2%	.9%	1.8%	18.6%	27.4%
	average	Count	13		1	28	42
		% of Total	11.5%		.9%	24.8%	37.2%
	poor	Count	2	2		9	13
		% of Total	1.8%	1.8%		8.0%	11.5%
	very poor	Count	1		1	7	9
		% of Total	.9%		.9%	6.2%	8.0%
	not applicable	Count	3			5	8
		% of Total	2.7%			4.4%	7.1%
Total		Count	33	3	5	72	113
		% of Total	29.2%	2.7%	4.4%	63.7%	100.0%

Appendix E

Tabulated Results from the Semi Structured Interviews

Table 8.1 Demographic Details

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 1st new house	no	yes	no	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
2 no of previous	1	0	1	0	0	0	1	0	0	0	0	0	1
3 compared with last	Slightly better	N/a	better	N/a	N/a	N/a	Better	N/a	N/a	N/a	N/a	N/a	Not as good
4 main attraction	Layout, builder, price	Layout position price	Location builder price	Location size	Location layout size	New house Location	Location Layout	Location	Location Style Choice	Location Size Price	Layout Location	Size location price	Location Layout price
5 how long how well	12 months well	11 months well	6 months well	3 months poorly	22 months poorly	2 months well	5 months well	6 months well	20 months well	30 months well	42 months well	48 months well	9 months just about

Table 8.2 Element Life Expectancy

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 windows	15-20 years	Min 10 years	10-15 years	15 years	15-20 years	15-20 years	Min 15 years	10-15 years	20 years	10-15 years	10+ years	20-25 years	25 years
2 doors	10 years	15 years	10-15 years	5-6 years	15 years	Min 25 years	15-20 years	25 years	20 years	10+ years	10+ years	25 years	20-30 years
3 initial decoration	6 months	2 months	6 months	1 year	1-2 years	6-12 months	Weeks	up to 4 years	6-18 months	2-3 years	Up to 12 months	2+ years	2-3 years
4 kitchen units	7-8 years	5-10 years	10+ years	2-3 years	15 years	15-20 years	7-10 years	15 years	20+ years	8 years	10-15 years	Min 10 years	10 years
5 heating systems	10+ years	10 years	20 years	10 years	15 years	10–15 years	10-25 years	15 years	20+ years	15 years	5-10 years	20 years	25+ years

Table 8.3 Handover and initial period

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 how much snagging	List of 21 items	List of 7-10 items	List of 7 pages	List of 4 sheets	None	2 hrs 2-3 sheets	3 visits 4 sheets	Small items minor details	Minor things	List of 3-4 sheets	Given 20 mins to snag	List of 10-12 items	2 visits 20-30 items
2 finished on move in day	No	No	No	No	No	No	No	No	Yes	No	Yes	Yes	No
3 who finished them	16 by builder 5 by owner	All by builder	50% by builder owner done some	50% by builder 50% by owner	Major by builder rest by owner	Builder ongoing Owner some	Builder ongoing	Owner	N/A	Builder 40% Owner 60%	N/A	N/A	Builder
4 after sales service	Accept	Reason well	Poorly	Poorly	Poorly	Reason well	Not very well	Reason well	Well	Poorly	Well	Reason well	Reason well
5 type of problems	Mainly cosmetic	Fins	Fins	Fins	Fins	Fins	Fins	Fins	Minor	Fins	Minor	Minor	Finss

Table 8.4 Technical elements importance ranking
A = Highest; G = Lowest

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 brickwork	A	B	A	A	A	A	A	A	G	A	I	A	A
2 roofing	B	A	A	B	B	A	A	B	F	B	H	B	B
3 ext doors & windows	C	C	C	E	E	A	E	E	D	C	E	C	D
4 int doors & kit units	G	F	F	G	F	F	F	F	D	F	B	D	F
5 internal finishes	H	F	H	F	H	D	G	G	A	H	A	E	H
6 decoration	I	H	H	H	H	G	I	H	I	I	D	G	I
7 electrical system	E	E	D	D	C	G	C	C	A	D	G	H	C
8 heating & vent system	D	D	D	C	D	G	C	D	A	E	F	F	E
9 paths, fences, drives and gardens	F	I	G	I	G	E	H	I	H	G	B	I	G

Table 8.5 Acceptability of brickwork
Acceptable brickwork = A; Unacceptable brickwork = B Unsure = A+B

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 rough & wandering perps	A	A	B	A	A	A	B	B	A	B	A	A	B
2 good but dirty	A	A	A	A	A	B	A	A	A	B	A	B	B
3 good but dirty	B	A	B	B	B	B	A	A	B	B	B	B	B
4 lost bond and dirty	B	A+B	B/A	A	A	A	B	B	A	A	A	A	A
5 good but effloressence	B	A+B	B	B	A	B	B	A	A	B	B	B	B
6 fair tight vertical joints	A	A	A	A	A	A	B	B	A	A	B	B	A
7 fair jointing too deep	A	A	B	A	A	A	B	B	B	B	B	A	A
8 uneven & wandering perps	A	A+B	B	A	A	A	A	B	A/B	A	B	A	A
9 lost bond and cuts	B	A+B	B	B	A	A	B	B	A	A	A	B	A
10 good but line pin holes	A	A	A	A	A	B	A	A	B	B	B	A	A
11 tight perps with cuts	A	A+B	A	A	B	B	B	B	B	A	A	A	A
12 good but dirty	A	A	B	B	A	B	A	A	A	A	B	B	A
13 bad batching shading	B	A	B	A	B	B	B	B	B	B	A	B	B

Table 8.6 NHBC warranty cover
Items covered 1-2 years = A; 1-10 years = B; Not covered = C

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 foundation subsidence	B	B	B	B	B	B	B	B	B	B	B	B	B
2 rubble under turf	A	A	X	X	A	X	A	X	X	A	X	X	A
3 rough plaster work	A	A	A	X	A	A	A	A	A	A	A	A	A
4 warped front door	A	A	A	A	A	A	A	A	X	A	A	A	A
5 creaking floors	A	B	X	A	A	X	A	X	X	A	A	X	A
6 plaster cracks	X	A	A	A	X	X	X	X	X	A	X	A	A
7 dry rot in roof timbers	B	B	B	B	B	B	B	B	B	B	B	B	B
8 rotting windows	B	A	A	B	A	A	B	A	A	A	X	A	B
9 floor out of level	A	B	A	B	B	A	A	A	A	A	A	A	A
10 defective pointing	A	A	B	B	A	A	A	A	A	B	A	B	A
11 slipping roof ties	B	B	A	A	A	A	B	A	B	A	X	11	A

Table 8.7 Levels of confidence in

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13
1 builder	yes	yes	no	no	no	yes	yes	yes	yes	no	yes	yes	no
2 product	yes	yes	partly	yes(so far)	yes	yes	yes	yes	yes	no	yes	yes	yes
3 site staff	yes	yes	no	no	no	yes	no	no	yes	no	yes	yes	yes
4 sales staff	yes	yes	no	no	yes	yes	no	no	yes	yes	no	yes/no	yes
5 after sales staff	yes	yes	no	no	no	n/a	n/a	n/a	yes	no	yes	no	no
6 house investment or somewhere to live	Just a home but will not loose Long term	Invest and home	invest	Home first	She invest He home	Prime home but hope will be invest long term	Prime home but also long term invest	Invest and home	70& home 30% invest	Home and then invest	Invest and home	Prime home sec invest	Home
7 house against car build quality	Car best	Happy with both	Difficult to compare	Car better than house	Does not come close	About same	Different but happy with house	Reasonable no niggles	As good as	Not pos to equate	Not pos to equate	Not pos to equate car safety import	Not pos to equate More hit & miss with house

Appendix F.1

SPSS tables – Main questionnaire Survey: page 1 of 14
Frequencies

number of new homes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	170	60.1	60.1	60.1
	1 new home	75	26.5	26.5	86.6
	2 new homes	20	7.1	7.1	93.6
	3 new homes	9	3.2	3.2	96.8
	more than 3 new homes	9	3.2	3.2	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

appearance - importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not important	1	.4	.4	.4
	quite important	12	4.2	4.2	4.6
	very important	151	53.4	53.4	58.0
	critically important	119	42.0	42.0	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

inspections - importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not answered	3	1.1	1.1	1.1
	not important	5	1.8	1.8	2.8
	quite important	24	8.5	8.5	11.3
	very important	82	29.0	29.0	40.3
	critically important	169	59.7	59.7	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

sales team efficiency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no sales team	8	2.8	2.8	2.8
	not important	6	2.1	2.1	4.9
	quite important	25	8.8	8.8	13.8
	very important	89	31.4	31.4	45.2
	critically important	155	54.8	54.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

build team options

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	10	3.5	3.5	3.5
	not important	5	1.8	1.8	5.3
	quite important	13	4.6	4.6	9.9
	very important	95	33.6	33.6	43.5
	critically important	160	56.5	56.5	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

snagging before completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	4	1.4	1.4	1.4
	not important	3	1.1	1.1	2.5
	quite important	25	8.8	8.8	11.3
	very important	128	45.2	45.2	56.5
	exceedingly important	123	43.5	43.5	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

inspection before completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	3	1.1	1.1	1.1
	not important	2	.7	.7	1.8
	quite important	15	5.3	5.3	7.1
	very important	107	37.8	37.8	44.9
	critically important	156	55.1	55.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

finished before completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	not important	2	.7	.7	1.1
	quite important	14	4.9	4.9	6.0
	very important	105	37.1	37.1	43.1
	critically important	161	56.9	56.9	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

aftersales service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	not important	3	1.1	1.1	1.4
	quite important	6	2.1	2.1	3.5
	very important	107	37.8	37.8	41.3
	critically important	166	58.7	58.7	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

show house standard or better

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not answered or applicable	5	1.8	1.8	1.8
	not important	6	2.1	2.1	3.9
	quite important	17	6.0	6.0	9.9
	very important	122	43.1	43.1	53.0
	critically important	133	47.0	47.0	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

clean when moved in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not important	2	.7	.7	.7
	quite important	25	8.8	8.8	9.5
	very important	117	41.3	41.3	50.9
	critically important	139	49.1	49.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

structural warranty scope & cover explained

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not answered	2	.7	.7	.7
	not important	3	1.1	1.1	1.8
	quite important	16	5.7	5.7	7.4
	very important	90	31.8	31.8	39.2
	critically important	172	60.8	60.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

controls and features explained

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	not important	7	2.5	2.5	2.8
	quite important	31	11.0	11.0	13.8
	very important	140	49.5	49.5	63.3
	critically important	104	36.7	36.7	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

plaster work smooth & flat

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	not important	3	1.1	1.1	1.4
	quite important	18	6.4	6.4	7.8
	very important	140	49.5	49.5	57.2
	critically important	121	42.8	42.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

woodwork filled & sanded before painting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not important	4	1.4	1.4	1.4
	quite important	21	7.4	7.4	8.8
	very important	145	51.2	51.2	60.1
	critically important	113	39.9	39.9	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

finish to tiles etc better than diy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	not important	1	.4	.4	.7
	quite important	11	3.9	3.9	4.6
	very important	136	48.1	48.1	52.7
	critically important	134	47.3	47.3	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

external works useable and secure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.7	.7	.7
	not important	1	.4	.4	1.1
	quite important	20	7.1	7.1	8.1
	very important	136	48.1	48.1	56.2
	critically important	124	43.8	43.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

heating allows use of whole house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	4	1.4	1.4	1.4
	not important	2	.7	.7	2.1
	quite important	5	1.8	1.8	3.9
	very important	105	37.1	37.1	41.0
	critically important	167	59.0	59.0	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

energy efficient, lower running costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.7	.7	.7
	not important	2	.7	.7	1.4
	quite important	6	2.1	2.1	3.5
	very important	114	40.3	40.3	43.8
	critically important	159	56.2	56.2	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

low maintenance components

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	3	1.1	1.1	1.1
	not important	4	1.4	1.4	2.5
	quite important	39	13.8	13.8	16.3
	very important	138	48.8	48.8	65.0
	critically important	99	35.0	35.0	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

problem free experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.7	.7	.7
	not important	4	1.4	1.4	2.1
	quite important	19	6.7	6.7	8.8
	very important	128	45.2	45.2	54.1
	critically important	130	45.9	45.9	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

appearance - expectations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	failed to meet	13	4.6	4.6	4.9
	partialy failed to meet	48	17.0	17.0	21.9
	meeting	184	65.0	65.0	86.9
	exceeding	37	13.1	13.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

inspections - expectations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not answered	6	2.1	2.1	2.1
	failed to meet	19	6.7	6.7	8.8
	partially failed to meet	41	14.5	14.5	23.3
	meeting	175	61.8	61.8	85.2
	exceeding	42	14.8	14.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

sales efficiency expectations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no sales team	9	3.2	3.2	3.2
	failed to meet	32	11.3	11.3	14.5
	partially failed to meet	48	17.0	17.0	31.4
	meeting	135	47.7	47.7	79.2
	exceeding	59	20.8	20.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

buid team options

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	11	3.9	3.9	3.9
	failed to meet	31	11.0	11.0	14.8
	partialy failed to meet	56	19.8	19.8	34.6
	meeting	131	46.3	46.3	80.9
	exceeding	54	19.1	19.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

snagging before completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	4	1.4	1.4	1.4
	failed to meet	80	28.3	28.3	29.7
	partially failed to meet	106	37.5	37.5	67.1
	meeting	71	25.1	25.1	92.2
	exceeding	22	7.8	7.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

inspection before completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.7	.7	.7
	failed to meet	55	19.4	19.4	20.1
	partially failed to meet	66	23.3	23.3	43.5
	meeting	115	40.6	40.6	84.1
	exceeding	45	15.9	15.9	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

finished before completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.7	.7	.7
	failed to meet	84	29.7	29.7	30.4
	partially failed to meet	77	27.2	27.2	57.6
	meeting	85	30.0	30.0	87.6
	exceeding	35	12.4	12.4	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

aftersales service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2	.7	.7	.7
	failed to meet	86	30.4	30.4	31.1
	partialy failed to meet	80	28.3	28.3	59.4
	meeting	71	25.1	25.1	84.5
	exceeding	44	15.5	15.5	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

show house standard or better

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	could not answer	6	2.1	2.1	2.1
	failed to meet	56	19.8	19.8	21.9
	partially failed to meet	90	31.8	31.8	53.7
	meeting	107	37.8	37.8	91.5
	exceeding	24	8.5	8.5	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

clean when moved in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	failed to meet	50	17.7	17.7	17.7
	partialy failed to meet	68	24.0	24.0	41.7
	meeting	109	38.5	38.5	80.2
	exceeding	56	19.8	19.8	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

controls and features explained

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	failed to meet	48	17.0	17.0	17.3
	partially failed to meet	83	29.3	29.3	46.6
	meeting	106	37.5	37.5	84.1
	exceeding	45	15.9	15.9	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

plaster work smooth & flat

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	failed to meet	44	15.5	15.5	15.9
	partially failed to meet	87	30.7	30.7	46.6
	meeting	118	41.7	41.7	88.3
	exceeding	33	11.7	11.7	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

woodwork filled & sanded before painting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	failed to meet	68	24.0	24.0	24.0
	partially failed to meet	103	36.4	36.4	60.4
	meeting	89	31.4	31.4	91.9
	exceeding	23	8.1	8.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

finish to tiling etc better than diy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	failed to meet	34	12.0	12.0	12.0
	partially failed to meet	65	23.0	23.0	35.0
	meeting	124	43.8	43.8	78.8
	exceeding	60	21.2	21.2	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

external works useable and secure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	failed to meet	66	23.3	23.3	23.3
	partially failed to meet	88	31.1	31.1	54.4
	meeting	106	37.5	37.5	91.9
	exceeding	23	8.1	8.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

heating allows use of whole house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	5	1.8	1.8	1.8
	failed to meet	20	7.1	7.1	8.8
	partialy failed to meet	26	9.2	9.2	18.0
	meeting	127	44.9	44.9	62.9
	exceeding	105	37.1	37.1	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

energy efficient, lower running costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not answered	9	3.2	3.2	3.2
	failed to meet	10	3.5	3.5	6.7
	partially failed to meet	31	11.0	11.0	17.7
	meeting	157	55.5	55.5	73.1
	exceeding	76	26.9	26.9	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

low maintenance components

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not answered or too soon to say	10	3.5	3.5	3.5
	failed to meet	15	5.3	5.3	8.8
	partially failed to meet	41	14.5	14.5	23.3
	meeting	174	61.5	61.5	84.8
	exceeding	43	15.2	15.2	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Frequencies

problem free experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.4	.4	.4
	failed to meet	72	25.4	25.4	25.8
	partially failed to meet	80	28.3	28.3	54.1
	meeting	97	34.3	34.3	88.3
	exceeding	33	11.7	11.7	100.0
	Total	283	100.0	100.0	
Total		283	100.0		

Appendix F.2

SPSS tables – Main questionnaire Survey: page 1 of 7
Cross-tabulations of Importance against Expectations

appearance - importance * appearance - expectations Crosstabulation

			appearance - expectations					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
appearance - importance	not important	Count				1		1
		% of Total				.4%		.4%
	quite important	Count			5	6	1	12
		% of Total			1.8%	2.1%	.4%	4.2%
	very important	Count	1	3	24	117	6	151
		% of Total	.4%	1.1%	8.5%	41.3%	2.1%	53.4%
	critically important	Count		10	19	60	30	119
		% of Total		3.5%	6.7%	21.2%	10.6%	42.0%
Total		Count	1	13	48	184	37	283
		% of Total	.4%	4.6%	17.0%	65.0%	13.1%	100.0%

inspections - importance * inspections - expectations Crosstabulation

			inspections - expectations					
			not answered	failed to meet	partially failed to meet	meeting	exceeding	Total
inspections - importance	not answered	Count	3					3
		% of Total	1.1%					1.1%
	not important	Count		4	1			5
		% of Total		1.4%	.4%			1.8%
	quite important	Count		2	7	15		24
		% of Total		.7%	2.5%	5.3%		8.5%
	very important	Count	2	4	9	63	4	82
		% of Total	.7%	1.4%	3.2%	22.3%	1.4%	29.0%
	critically important	Count	1	9	24	97	38	169
		% of Total	.4%	3.2%	8.5%	34.3%	13.4%	59.7%
Total		Count	6	19	41	175	42	283
		% of Total	2.1%	6.7%	14.5%	61.8%	14.8%	100.0%

sales team efficiency * sales efficiency expectations Crosstabulation

			sales efficiency expectations					
			no sales team	failed to meet	partially failed to meet	meeting	exceeding	Total
sales team efficiency	no sales team	Count	8					8
		% of Total	2.8%					2.8%
	not important	Count		6				6
		% of Total		2.1%				2.1%
	quite important	Count		1	7	14	3	25
		% of Total		.4%	2.5%	4.9%	1.1%	8.8%
	very important	Count		9	18	54	8	89
		% of Total		3.2%	6.4%	19.1%	2.8%	31.4%
	critically important	Count	1	16	23	67	48	155
		% of Total	.4%	5.7%	8.1%	23.7%	17.0%	54.8%
Total		Count	9	32	48	135	59	283
		% of Total	3.2%	11.3%	17.0%	47.7%	20.8%	100.0%

Cross-tabulations of Importance against Expectations

build team options * buid team options Crosstabulation

			buid team options					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
build team options	.00	Count	9			1		10
		% of Total	3.2%			.4%		3.5%
	not important	Count		2	1	1	1	5
		% of Total		.7%	.4%	.4%	.4%	1.8%
	quite important	Count		1	4	7	1	13
		% of Total		.4%	1.4%	2.5%	.4%	4.6%
	very important	Count	2	10	29	51	3	95
		% of Total	.7%	3.5%	10.2%	18.0%	1.1%	33.6%
	critically important	Count		18	22	71	49	160
		% of Total		6.4%	7.8%	25.1%	17.3%	56.5%
Total		Count	11	31	56	131	54	283
		% of Total	3.9%	11.0%	19.8%	46.3%	19.1%	100.0%

snagging before completion * snagging before completion Crosstabulation

			snagging before completion					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
snagging before completion	.00	Count	3		1			4
		% of Total	1.1%		.4%			1.4%
	not important	Count		2		1		3
		% of Total		.7%		.4%		1.1%
	quite important	Count		2	12	8	3	25
		% of Total		.7%	4.2%	2.8%	1.1%	8.8%
	very important	Count		24	57	43	4	128
		% of Total		8.5%	20.1%	15.2%	1.4%	45.2%
	exceedingly important	Count	1	52	36	19	15	123
		% of Total	.4%	18.4%	12.7%	6.7%	5.3%	43.5%
Total		Count	4	80	106	71	22	283
		% of Total	1.4%	28.3%	37.5%	25.1%	7.8%	100.0%

inspection before completion * inspection before completion Crosstabulation

			inspection before completion					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
inspection before completion	.00	Count	2			1		3
		% of Total	.7%			.4%		1.1%
	not important	Count		1			1	2
		% of Total		.4%			.4%	.7%
	quite important	Count			7	6	2	15
		% of Total			2.5%	2.1%	.7%	5.3%
	very important	Count		19	31	53	4	107
		% of Total		6.7%	11.0%	18.7%	1.4%	37.8%
	critically important	Count		35	28	55	38	156
		% of Total		12.4%	9.9%	19.4%	13.4%	55.1%
Total		Count	2	55	66	115	45	283
		% of Total	.7%	19.4%	23.3%	40.6%	15.9%	100.0%

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Cross-tabulations of Importance against Expectations

finished before completion * finished before completion Crosstabulation

			finished before completion					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
finished before completion	.00	Count	1					1
		% of Total	.4%					.4%
	not important	Count		2				2
		% of Total		.7%				.7%
	quite important	Count		2	4	6	2	14
		% of Total		.7%	1.4%	2.1%	.7%	4.9%
	very important	Count		29	39	33	4	105
		% of Total		10.2%	13.8%	11.7%	1.4%	37.1%
	critically important	Count	1	51	34	46	29	161
		% of Total	.4%	18.0%	12.0%	16.3%	10.2%	56.9%
Total		Count	2	84	77	85	35	283
		% of Total	.7%	29.7%	27.2%	30.0%	12.4%	100.0%

aftersales service * aftersales service Crosstabulation

			aftersales service					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
aftersales service	.00	Count	1					1
		% of Total	.4%					.4%
	not important	Count			2		1	3
		% of Total			.7%		.4%	1.1%
	quite important	Count			2	1	3	6
		% of Total			.7%	.4%	1.1%	2.1%
	very important	Count		32	32	29	14	107
		% of Total		11.3%	11.3%	10.2%	4.9%	37.8%
	critically important	Count	1	54	44	41	26	166
		% of Total	.4%	19.1%	15.5%	14.5%	9.2%	58.7%
Total		Count	2	86	80	71	44	283
		% of Total	.7%	30.4%	28.3%	25.1%	15.5%	100.0%

show house standard or better * show house standard or better Crosstabulation

			show house standard or better					
			could not answer	failed to meet	partially failed to meet	meeting	exceeding	Total
show house standard or better	not answered or applicable	Count	5					5
		% of Total	1.8%					1.8%
	not important	Count			2	4		6
		% of Total			.7%	1.4%		2.1%
	quite important	Count		1	5	10	1	17
		% of Total		.4%	1.8%	3.5%	.4%	6.0%
	very important	Count		21	46	52	3	122
		% of Total		7.4%	16.3%	18.4%	1.1%	43.1%
	critically important	Count	1	34	37	41	20	133
		% of Total	.4%	12.0%	13.1%	14.5%	7.1%	47.0%
Total		Count	6	56	90	107	24	283
		% of Total	2.1%	19.8%	31.8%	37.8%	8.5%	100.0%

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Cross-tabulations of Importance against Expectations

clean when moved in * clean when moved in Crosstabulation

			clean when moved in				
			failed to meet	partialy failed to meet	meeting	exceeding	Total
clean when moved in	not important	Count	1			1	2
		% of Total	.4%			.4%	.7%
	quite important	Count	4	8	11	2	25
		% of Total	1.4%	2.8%	3.9%	.7%	8.8%
	very important	Count	20	27	61	9	117
		% of Total	7.1%	9.5%	21.6%	3.2%	41.3%
	critically important	Count	25	33	37	44	139
		% of Total	8.8%	11.7%	13.1%	15.5%	49.1%
Total		Count	50	68	109	56	283
		% of Total	17.7%	24.0%	38.5%	19.8%	100.0%

structural warranty scope & cover explained * structural warranty scope & cover explained Crosstabulation

			structural warranty scope & cover explained					
			not answered	failed to meet	partially failed to meet	meeting	exceeding	Total
structural warranty scope & cover explained	not answered	Count	1	1				2
		% of Total	.4%	.4%				.7%
	not important	Count			2	1		3
		% of Total			.7%	.4%		1.1%
	quite important	Count		2	12	2		16
		% of Total		.7%	4.2%	.7%		5.7%
	very important	Count		10	37	41	2	90
		% of Total		3.5%	13.1%	14.5%	.7%	31.8%
	critically important	Count		21	45	69	37	172
		% of Total		7.4%	15.9%	24.4%	13.1%	60.8%
Total		Count	1	34	96	113	39	283
		% of Total	.4%	12.0%	33.9%	39.9%	13.8%	100.0%

controls and features explained * controls and features explained Crosstabulation

			controls and features explained					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
controls and features explained	.00	Count	1					1
		% of Total	.4%					.4%
	not important	Count		1	3	2	1	7
		% of Total		.4%	1.1%	.7%	.4%	2.5%
	quite important	Count		7	12	10	2	31
		% of Total		2.5%	4.2%	3.5%	.7%	11.0%
	very important	Count		24	44	65	7	140
		% of Total		8.5%	15.5%	23.0%	2.5%	49.5%
	critically important	Count		16	24	29	35	104
		% of Total		5.7%	8.5%	10.2%	12.4%	36.7%
Total		Count	1	48	83	106	45	283
		% of Total	.4%	17.0%	29.3%	37.5%	15.9%	100.0%

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Cross-tabulations of Importance against Expectations

plaster work smooth & flat * plaster work smooth & flat Crosstabulation

			plaster work smooth & flat					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
plaster work smooth & flat	.00	Count	1					1
		% of Total	.4%					.4%
	not important	Count			2	1		3
		% of Total			.7%	.4%		1.1%
	quite important	Count		1	8	9		18
		% of Total		.4%	2.8%	3.2%		6.4%
	very important	Count		24	43	67	6	140
		% of Total		8.5%	15.2%	23.7%	2.1%	49.5%
	critically important	Count		19	34	41	27	121
		% of Total		6.7%	12.0%	14.5%	9.5%	42.8%
Total		Count	1	44	87	118	33	283
		% of Total	.4%	15.5%	30.7%	41.7%	11.7%	100.0%

woodwork filled & sanded before painting * woodwork filled & sanded before painting Crosstabulation

			woodwork filled & sanded before painting				
			failed to meet	partially failed to meet	meeting	exceeding	Total
woodwork filled & sanded before painting	not important	Count	2		1	1	4
		% of Total	.7%		.4%	.4%	1.4%
	quite important	Count	4	15	2		21
		% of Total	1.4%	5.3%	.7%		7.4%
	very important	Count	33	55	52	5	145
		% of Total	11.7%	19.4%	18.4%	1.8%	51.2%
	critically important	Count	29	33	34	17	113
		% of Total	10.2%	11.7%	12.0%	6.0%	39.9%
Total		Count	68	103	89	23	283
		% of Total	24.0%	36.4%	31.4%	8.1%	100.0%

finish to tiles etc better than diy * finish to tiling etc better than diy Crosstabulation

			finish to tiling etc better than diy				
			failed to meet	partially failed to meet	meeting	exceeding	Total
finish to tiles etc better than diy	.00	Count	1				1
		% of Total	.4%				.4%
	not important	Count		1			1
		% of Total		.4%			.4%
	quite important	Count	3	4	3	1	11
		% of Total	1.1%	1.4%	1.1%	.4%	3.9%
	very important	Count	14	41	66	15	136
		% of Total	4.9%	14.5%	23.3%	5.3%	48.1%
	critically important	Count	16	19	55	44	134
		% of Total	5.7%	6.7%	19.4%	15.5%	47.3%
Total		Count	34	65	124	60	283
		% of Total	12.0%	23.0%	43.8%	21.2%	100.0%

external works useable and secure * external works useable and secure Crosstabulation

			external works useable and secure				
			failed to meet	partially failed to meet	meeting	exceeding	Total
external works useable and secure	.00	Count		2			2
		% of Total		.7%			.7%
	not important	Count	1				1
		% of Total	.4%				.4%
	quite important	Count	5	7	7	1	20
		% of Total	1.8%	2.5%	2.5%	.4%	7.1%
	very important	Count	29	47	54	6	136
		% of Total	10.2%	16.6%	19.1%	2.1%	48.1%
	critically important	Count	31	32	45	16	124
		% of Total	11.0%	11.3%	15.9%	5.7%	43.8%
Total		Count	66	88	106	23	283
		% of Total	23.3%	31.1%	37.5%	8.1%	100.0%

heating allows use of whole house * heating allows use of whole house Crosstabulation

			heating allows use of whole house					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
heating allows use of whole house	.00	Count	4					4
		% of Total	1.4%					1.4%
	not important	Count		2				2
		% of Total		.7%				.7%
	quite important	Count		1		3	1	5
		% of Total		.4%		1.1%	.4%	1.8%
	very important	Count	1	6	15	64	19	105
		% of Total	.4%	2.1%	5.3%	22.6%	6.7%	37.1%
	critically important	Count		11	11	60	85	167
		% of Total		3.9%	3.9%	21.2%	30.0%	59.0%
Total		Count	5	20	26	127	105	283
		% of Total	1.8%	7.1%	9.2%	44.9%	37.1%	100.0%

energy efficient, lower running costs * energy efficient, lower running costs Crosstabulation

			energy efficient, lower running costs					
			not answered	failed to meet	partially failed to meet	meeting	exceeding	Total
energy efficient, lower running costs	.00	Count	2					2
		% of Total	.7%					.7%
	not important	Count			2			2
		% of Total			.7%			.7%
	quite important	Count				6		6
		% of Total				2.1%		2.1%
	very important	Count	5	3	15	76	15	114
		% of Total	1.8%	1.1%	5.3%	26.9%	5.3%	40.3%
	critically important	Count	2	7	14	75	61	159
		% of Total	.7%	2.5%	4.9%	26.5%	21.6%	56.2%
Total		Count	9	10	31	157	76	283
		% of Total	3.2%	3.5%	11.0%	55.5%	26.9%	100.0%

Cross-tabulations of Importance against Expectations

low maintenance components * low maintenance components Crosstabulation

			low maintenance components					
			not answered or too soon to say	failed to meet	partially failed to meet	meeting	exceeding	Total
low maintenance components	.00	Count	3					3
		% of Total	1.1%					1.1%
	not important	Count			2	2		4
		% of Total			.7%	.7%		1.4%
	quite important	Count		1	7	30	1	39
		% of Total		.4%	2.5%	10.6%	.4%	13.8%
	very important	Count	4	7	23	97	7	138
		% of Total	1.4%	2.5%	8.1%	34.3%	2.5%	48.8%
	critically important	Count	3	7	9	45	35	99
		% of Total	1.1%	2.5%	3.2%	15.9%	12.4%	35.0%
Total		Count	10	15	41	174	43	283
		% of Total	3.5%	5.3%	14.5%	61.5%	15.2%	100.0%

problem free experience * problem free experience Crosstabulation

			problem free experience					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
problem free experience	.00	Count	1		1			2
		% of Total	.4%		.4%			.7%
	not important	Count		2	1	1		4
		% of Total		.7%	.4%	.4%		1.4%
	quite important	Count		4	6	8	1	19
		% of Total		1.4%	2.1%	2.8%	.4%	6.7%
	very important	Count		26	39	54	9	128
		% of Total		9.2%	13.8%	19.1%	3.2%	45.2%
	critically important	Count		40	33	34	23	130
		% of Total		14.1%	11.7%	12.0%	8.1%	45.9%
Total		Count	1	72	80	97	33	283
		% of Total	.4%	25.4%	28.3%	34.3%	11.7%	100.0%

Appendix F.3

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Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * appearance - expectations Crosstabulation

			appearance - expectations					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
number of new homes	none	Count	1	5	26	115	23	170
		% of Total	.4%	1.8%	9.2%	40.6%	8.1%	60.1%
	1 new home	Count		7	16	46	6	75
		% of Total		2.5%	5.7%	16.3%	2.1%	26.5%
	2 new homes	Count			3	12	5	20
		% of Total			1.1%	4.2%	1.8%	7.1%
	3 new homes	Count			3	4	2	9
		% of Total			1.1%	1.4%	.7%	3.2%
	more than 3 new homes	Count		1		7	1	9
		% of Total		.4%		2.5%	.4%	3.2%
Total		Count	1	13	48	184	37	283
		% of Total	.4%	4.6%	17.0%	65.0%	13.1%	100.0%

number of new homes * appearance - importance Crosstabulation

			appearance - importance				
			not important	quite important	very important	critically important	Total
number of new homes	none	Count		8	87	75	170
		% of Total		2.8%	30.7%	26.5%	60.1%
	1 new home	Count		3	45	27	75
		% of Total		1.1%	15.9%	9.5%	26.5%
	2 new homes	Count		1	9	10	20
		% of Total		.4%	3.2%	3.5%	7.1%
	3 new homes	Count			5	4	9
		% of Total			1.8%	1.4%	3.2%
	more than 3 new homes	Count	1		5	3	9
		% of Total	.4%		1.8%	1.1%	3.2%
Total		Count	1	12	151	119	283
		% of Total	.4%	4.2%	53.4%	42.0%	100.0%

number of new homes * inspections - expectations Crosstabulation

			inspections - expectations					
			not answered	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	3	11	19	108	29	170
		% of Total	1.1%	3.9%	6.7%	38.2%	10.2%	60.1%
	1 new home	Count	2	4	18	42	9	75
		% of Total	.7%	1.4%	6.4%	14.8%	3.2%	26.5%
	2 new homes	Count	1	2	1	14	2	20
		% of Total	.4%	.7%	.4%	4.9%	.7%	7.1%
	3 new homes	Count		1	1	6	1	9
		% of Total		.4%	.4%	2.1%	.4%	3.2%
	more than 3 new homes	Count		1	2	5	1	9
		% of Total		.4%	.7%	1.8%	.4%	3.2%
Total		Count	6	19	41	175	42	283
		% of Total	2.1%	6.7%	14.5%	61.8%	14.8%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * inspections - importance Crosstabulation

			inspections - importance					
			not answered	not important	quite important	very important	critically important	Total
number of new homes	none	Count	1	3	11	49	106	170
		% of Total	.4%	1.1%	3.9%	17.3%	37.5%	60.1%
	1 new home	Count	1		8	27	39	75
		% of Total	.4%		2.8%	9.5%	13.8%	26.5%
	2 new homes	Count	1	1	1	4	13	20
		% of Total	.4%	.4%	.4%	1.4%	4.6%	7.1%
	3 new homes	Count		1	2	2	4	9
		% of Total		.4%	.7%	.7%	1.4%	3.2%
	more than 3 new homes	Count			2		7	9
		% of Total			.7%		2.5%	3.2%
Total		Count	3	5	24	82	169	283
		% of Total	1.1%	1.8%	8.5%	29.0%	59.7%	100.0%

number of new homes * sales efficiency expectations Crosstabulation

			sales efficiency expectations					
			no sales team	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	4	20	27	82	37	170
		% of Total	1.4%	7.1%	9.5%	29.0%	13.1%	60.1%
	1 new home	Count	5	10	14	33	13	75
		% of Total	1.8%	3.5%	4.9%	11.7%	4.6%	26.5%
	2 new homes	Count		1	6	10	3	20
		% of Total		.4%	2.1%	3.5%	1.1%	7.1%
	3 new homes	Count			1	4	4	9
		% of Total			.4%	1.4%	1.4%	3.2%
	more than 3 new homes	Count		1		6	2	9
		% of Total		.4%		2.1%	.7%	3.2%
Total		Count	9	32	48	135	59	283
		% of Total	3.2%	11.3%	17.0%	47.7%	20.8%	100.0%

number of new homes * sales team efficiency Crosstabulation

			sales team efficiency					
			no sales team	not important	quite important	very important	critically important	Total
number of new homes	none	Count	4	5	13	54	94	170
		% of Total	1.4%	1.8%	4.6%	19.1%	33.2%	60.1%
	1 new home	Count	4		7	18	46	75
		% of Total	1.4%		2.5%	6.4%	16.3%	26.5%
	2 new homes	Count		1	3	7	9	20
		% of Total		.4%	1.1%	2.5%	3.2%	7.1%
	3 new homes	Count			1	5	3	9
		% of Total			.4%	1.8%	1.1%	3.2%
	more than 3 new homes	Count			1	5	3	9
		% of Total			.4%	1.8%	1.1%	3.2%
Total		Count	8	6	25	89	155	283
		% of Total	2.8%	2.1%	8.8%	31.4%	54.8%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * buid team options Crosstabulation

			buid team options					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
number of new homes	none	Count	6	16	33	80	35	170
		% of Total	2.1%	5.7%	11.7%	28.3%	12.4%	60.1%
	1 new home	Count	5	11	17	31	11	75
		% of Total	1.8%	3.9%	6.0%	11.0%	3.9%	26.5%
	2 new homes	Count		2	3	11	4	20
		% of Total		.7%	1.1%	3.9%	1.4%	7.1%
	3 new homes	Count			1	6	2	9
		% of Total			.4%	2.1%	.7%	3.2%
	more than 3 new homes	Count		2	2	3	2	9
		% of Total		.7%	.7%	1.1%	.7%	3.2%
Total		Count	11	31	56	131	54	283
		% of Total	3.9%	11.0%	19.8%	46.3%	19.1%	100.0%

number of new homes * build team options Crosstabulation

			build team options					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	4	4	8	53	101	170
		% of Total	1.4%	1.4%	2.8%	18.7%	35.7%	60.1%
	1 new home	Count	6		3	24	42	75
		% of Total	2.1%		1.1%	8.5%	14.8%	26.5%
	2 new homes	Count			2	8	10	20
		% of Total			.7%	2.8%	3.5%	7.1%
	3 new homes	Count				5	4	9
		% of Total				1.8%	1.4%	3.2%
	more than 3 new homes	Count		1		5	3	9
		% of Total		.4%		1.8%	1.1%	3.2%
Total		Count	10	5	13	95	160	283
		% of Total	3.5%	1.8%	4.6%	33.6%	56.5%	100.0%

number of new homes * snagging before completion Crosstabulation

			snagging before completion					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	3	48	60	46	13	170
		% of Total	1.1%	17.0%	21.2%	16.3%	4.6%	60.1%
	1 new home	Count	1	23	32	14	5	75
		% of Total	.4%	8.1%	11.3%	4.9%	1.8%	26.5%
	2 new homes	Count		5	7	6	2	20
		% of Total		1.8%	2.5%	2.1%	.7%	7.1%
	3 new homes	Count		2	3	3	1	9
		% of Total		.7%	1.1%	1.1%	.4%	3.2%
	more than 3 new homes	Count		2	4	2	1	9
		% of Total		.7%	1.4%	.7%	.4%	3.2%
Total		Count	4	80	106	71	22	283
		% of Total	1.4%	28.3%	37.5%	25.1%	7.8%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * snagging before completion Crosstabulation

			snagging before completion					
			.00	not important	quite important	very important	exceedingly important	Total
number of new homes	none	Count	3	2	15	70	80	170
		% of Total	1.1%	.7%	5.3%	24.7%	28.3%	60.1%
	1 new home	Count	1	1	6	36	31	75
		% of Total	.4%	.4%	2.1%	12.7%	11.0%	26.5%
	2 new homes	Count			3	12	5	20
		% of Total			1.1%	4.2%	1.8%	7.1%
	3 new homes	Count				6	3	9
		% of Total				2.1%	1.1%	3.2%
	more than 3 new homes	Count			1	4	4	9
		% of Total			.4%	1.4%	1.4%	3.2%
Total		Count	4	3	25	128	123	283
		% of Total	1.4%	1.1%	8.8%	45.2%	43.5%	100.0%

number of new homes * inspection before completion Crosstabulation

			inspection before completion					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	1	33	41	65	30	170
		% of Total	.4%	11.7%	14.5%	23.0%	10.6%	60.1%
	1 new home	Count	1	17	13	34	10	75
		% of Total	.4%	6.0%	4.6%	12.0%	3.5%	26.5%
	2 new homes	Count		2	8	8	2	20
		% of Total		.7%	2.8%	2.8%	.7%	7.1%
	3 new homes	Count		2	3	3	1	9
		% of Total		.7%	1.1%	1.1%	.4%	3.2%
	more than 3 new homes	Count		1	1	5	2	9
		% of Total		.4%	.4%	1.8%	.7%	3.2%
Total		Count	2	55	66	115	45	283
		% of Total	.7%	19.4%	23.3%	40.6%	15.9%	100.0%

number of new homes * inspection before completion Crosstabulation

			inspection before completion					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	2	1	11	57	99	170
		% of Total	.7%	.4%	3.9%	20.1%	35.0%	60.1%
	1 new home	Count	1		3	30	41	75
		% of Total	.4%		1.1%	10.6%	14.5%	26.5%
	2 new homes	Count			1	12	7	20
		% of Total			.4%	4.2%	2.5%	7.1%
	3 new homes	Count				4	5	9
		% of Total				1.4%	1.8%	3.2%
	more than 3 new homes	Count		1		4	4	9
		% of Total		.4%		1.4%	1.4%	3.2%
Total		Count	3	2	15	107	156	283
		% of Total	1.1%	.7%	5.3%	37.8%	55.1%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * finished before completion Crosstabulation

			finished before completion					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	1	49	49	46	25	170
		% of Total	.4%	17.3%	17.3%	16.3%	8.8%	60.1%
	1 new home	Count		21	20	28	6	75
		% of Total		7.4%	7.1%	9.9%	2.1%	26.5%
	2 new homes	Count		7	4	7	2	20
		% of Total		2.5%	1.4%	2.5%	.7%	7.1%
	3 new homes	Count	1	4	2	1	1	9
		% of Total	.4%	1.4%	.7%	.4%	.4%	3.2%
	more than 3 new homes	Count		3	2	3	1	9
		% of Total		1.1%	.7%	1.1%	.4%	3.2%
Total		Count	2	84	77	85	35	283
		% of Total	.7%	29.7%	27.2%	30.0%	12.4%	100.0%

number of new homes * finished before completion Crosstabulation

			finished before completion					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	1	1	7	63	98	170
		% of Total	.4%	.4%	2.5%	22.3%	34.6%	60.1%
	1 new home	Count		1	4	28	42	75
		% of Total		.4%	1.4%	9.9%	14.8%	26.5%
	2 new homes	Count			2	9	9	20
		% of Total			.7%	3.2%	3.2%	7.1%
	3 new homes	Count				3	6	9
		% of Total				1.1%	2.1%	3.2%
	more than 3 new homes	Count			1	2	6	9
		% of Total			.4%	.7%	2.1%	3.2%
Total		Count	1	2	14	105	161	283
		% of Total	.4%	.7%	4.9%	37.1%	56.9%	100.0%

number of new homes * aftersales service Crosstabulation

			aftersales service					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
number of new homes	none	Count	2	52	46	43	27	170
		% of Total	.7%	18.4%	16.3%	15.2%	9.5%	60.1%
	1 new home	Count		23	23	18	11	75
		% of Total		8.1%	8.1%	6.4%	3.9%	26.5%
	2 new homes	Count		5	5	8	2	20
		% of Total		1.8%	1.8%	2.8%	.7%	7.1%
	3 new homes	Count		4	2	1	2	9
		% of Total		1.4%	.7%	.4%	.7%	3.2%
	more than 3 new homes	Count		2	4	1	2	9
		% of Total		.7%	1.4%	.4%	.7%	3.2%
Total		Count	2	86	80	71	44	283
		% of Total	.7%	30.4%	28.3%	25.1%	15.5%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * aftersales service Crosstabulation

			aftersales service					Total
			.00	not important	quite important	very important	critically important	
number of new homes	none	Count	1	2	3	65	99	170
		% of Total	.4%	.7%	1.1%	23.0%	35.0%	60.1%
	1 new home	Count		1	2	25	47	75
		% of Total		.4%	.7%	8.8%	16.6%	26.5%
	2 new homes	Count			1	10	9	20
		% of Total			.4%	3.5%	3.2%	7.1%
	3 new homes	Count				3	6	9
		% of Total				1.1%	2.1%	3.2%
	more than 3 new homes	Count				4	5	9
		% of Total				1.4%	1.8%	3.2%
Total		Count	1	3	6	107	166	283
		% of Total	.4%	1.1%	2.1%	37.8%	58.7%	100.0%

number of new homes * show house standard or better Crosstabulation

			show house standard or better					Total
			could not answer	failed to meet	partially failed to meet	meeting	exceeding	
number of new homes	none	Count	5	29	57	65	14	170
		% of Total	1.8%	10.2%	20.1%	23.0%	4.9%	60.1%
	1 new home	Count	1	21	22	25	6	75
		% of Total	.4%	7.4%	7.8%	8.8%	2.1%	26.5%
	2 new homes	Count		3	3	12	2	20
		% of Total		1.1%	1.1%	4.2%	.7%	7.1%
	3 new homes	Count		1	5	2	1	9
		% of Total		.4%	1.8%	.7%	.4%	3.2%
	more than 3 new homes	Count		2	3	3	1	9
		% of Total		.7%	1.1%	1.1%	.4%	3.2%
Total		Count	6	56	90	107	24	283
		% of Total	2.1%	19.8%	31.8%	37.8%	8.5%	100.0%

number of new homes * show house standard or better Crosstabulation

			show house standard or better					Total
			not answered or applicable	not important	quite important	very important	critically important	
number of new homes	none	Count	4	5	11	69	81	170
		% of Total	1.4%	1.8%	3.9%	24.4%	28.6%	60.1%
	1 new home	Count	1		2	36	36	75
		% of Total	.4%		.7%	12.7%	12.7%	26.5%
	2 new homes	Count		1	3	9	7	20
		% of Total		.4%	1.1%	3.2%	2.5%	7.1%
	3 new homes	Count			1	5	3	9
		% of Total			.4%	1.8%	1.1%	3.2%
	more than 3 new homes	Count				3	6	9
		% of Total				1.1%	2.1%	3.2%
Total		Count	5	6	17	122	133	283
		% of Total	1.8%	2.1%	6.0%	43.1%	47.0%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * clean when moved in Crosstabulation

			clean when moved in				
			failed to meet	partialy failed to meet	meeting	exceeding	Total
number of new homes	none	Count	28	39	69	34	170
		% of Total	9.9%	13.8%	24.4%	12.0%	60.1%
	1 new home	Count	17	21	24	13	75
		% of Total	6.0%	7.4%	8.5%	4.6%	26.5%
	2 new homes	Count	2	5	7	6	20
		% of Total	.7%	1.8%	2.5%	2.1%	7.1%
	3 new homes	Count	1	2	5	1	9
		% of Total	.4%	.7%	1.8%	.4%	3.2%
	more than 3 new homes	Count	2	1	4	2	9
		% of Total	.7%	.4%	1.4%	.7%	3.2%
Total		Count	50	68	109	56	283
		% of Total	17.7%	24.0%	38.5%	19.8%	100.0%

number of new homes * clean when moved in Crosstabulation

			clean when moved in				
			not important	quite important	very important	critically important	Total
number of new homes	none	Count	1	15	71	83	170
		% of Total	.4%	5.3%	25.1%	29.3%	60.1%
	1 new home	Count		6	30	39	75
		% of Total		2.1%	10.6%	13.8%	26.5%
	2 new homes	Count	1	2	8	9	20
		% of Total	.4%	.7%	2.8%	3.2%	7.1%
	3 new homes	Count		1	4	4	9
		% of Total		.4%	1.4%	1.4%	3.2%
	more than 3 new homes	Count		1	4	4	9
		% of Total		.4%	1.4%	1.4%	3.2%
Total		Count	2	25	117	139	283
		% of Total	.7%	8.8%	41.3%	49.1%	100.0%

number of new homes * structural warranty scope & cover explained Crosstabulation

			structural warranty scope & cover explained					
			not answered	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	1	15	55	77	22	170
		% of Total	.4%	5.3%	19.4%	27.2%	7.8%	60.1%
	1 new home	Count		14	30	21	10	75
		% of Total		4.9%	10.6%	7.4%	3.5%	26.5%
	2 new homes	Count		3	6	7	4	20
		% of Total		1.1%	2.1%	2.5%	1.4%	7.1%
	3 new homes	Count			4	3	2	9
		% of Total			1.4%	1.1%	.7%	3.2%
	more than 3 new homes	Count		2	1	5	1	9
		% of Total		.7%	.4%	1.8%	.4%	3.2%
Total		Count	1	34	96	113	39	283
		% of Total	.4%	12.0%	33.9%	39.9%	13.8%	100.0%

number of new homes * structural warranty scope & cover explained Crosstabulation

			structural warranty scope & cover explained					
			not answered	not important	quite important	very important	critically important	Total
number of new homes	none	Count	2	3	10	51	104	170
		% of Total	.7%	1.1%	3.5%	18.0%	36.7%	60.1%
	1 new home	Count			5	25	45	75
		% of Total			1.8%	8.8%	15.9%	26.5%
	2 new homes	Count				8	12	20
		% of Total				2.8%	4.2%	7.1%
	3 new homes	Count				3	6	9
		% of Total				1.1%	2.1%	3.2%
	more than 3 new homes	Count			1	3	5	9
		% of Total			.4%	1.1%	1.8%	3.2%
Total		Count	2	3	16	90	172	283
		% of Total	.7%	1.1%	5.7%	31.8%	60.8%	100.0%

number of new homes * controls and features explained Crosstabulation

			controls and features explained					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count		23	53	63	31	170
		% of Total		8.1%	18.7%	22.3%	11.0%	60.1%
	1 new home	Count	1	19	18	29	8	75
		% of Total	.4%	6.7%	6.4%	10.2%	2.8%	26.5%
	2 new homes	Count		2	7	8	3	20
		% of Total		.7%	2.5%	2.8%	1.1%	7.1%
	3 new homes	Count		2	3	2	2	9
		% of Total		.7%	1.1%	.7%	.7%	3.2%
	more than 3 new homes	Count		2	2	4	1	9
		% of Total		.7%	.7%	1.4%	.4%	3.2%
Total		Count	1	48	83	106	45	283
		% of Total	.4%	17.0%	29.3%	37.5%	15.9%	100.0%

number of new homes * controls and features explained Crosstabulation

			controls and features explained					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count		3	16	84	67	170
		% of Total		1.1%	5.7%	29.7%	23.7%	60.1%
	1 new home	Count	1	2	9	36	27	75
		% of Total	.4%	.7%	3.2%	12.7%	9.5%	26.5%
	2 new homes	Count			2	13	5	20
		% of Total			.7%	4.6%	1.8%	7.1%
	3 new homes	Count		1	1	4	3	9
		% of Total		.4%	.4%	1.4%	1.1%	3.2%
	more than 3 new homes	Count		1	3	3	2	9
		% of Total		.4%	1.1%	1.1%	.7%	3.2%
Total		Count	1	7	31	140	104	283
		% of Total	.4%	2.5%	11.0%	49.5%	36.7%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * plaster work smooth & flat Crosstabulation

			plaster work smooth & flat					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	1	23	52	76	18	170
		% of Total	.4%	8.1%	18.4%	26.9%	6.4%	60.1%
	1 new home	Count		13	29	23	10	75
		% of Total		4.6%	10.2%	8.1%	3.5%	26.5%
	2 new homes	Count		4	3	9	4	20
		% of Total		1.4%	1.1%	3.2%	1.4%	7.1%
	3 new homes	Count		2	2	5		9
		% of Total		.7%	.7%	1.8%		3.2%
	more than 3 new homes	Count		2	1	5	1	9
		% of Total		.7%	.4%	1.8%	.4%	3.2%
Total		Count	1	44	87	118	33	283
		% of Total	.4%	15.5%	30.7%	41.7%	11.7%	100.0%

number of new homes * plaster work smooth & flat Crosstabulation

			plaster work smooth & flat					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	1	2	10	93	64	170
		% of Total	.4%	.7%	3.5%	32.9%	22.6%	60.1%
	1 new home	Count		1	4	30	40	75
		% of Total		.4%	1.4%	10.6%	14.1%	26.5%
	2 new homes	Count			1	9	10	20
		% of Total			.4%	3.2%	3.5%	7.1%
	3 new homes	Count			1	4	4	9
		% of Total			.4%	1.4%	1.4%	3.2%
	more than 3 new homes	Count			2	4	3	9
		% of Total			.7%	1.4%	1.1%	3.2%
Total		Count	1	3	18	140	121	283
		% of Total	.4%	1.1%	6.4%	49.5%	42.8%	100.0%

number of new homes * woodwork filled & sanded before painting Crosstabulation

			woodwork filled & sanded before painting				
			failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	34	60	61	15	170
		% of Total	12.0%	21.2%	21.6%	5.3%	60.1%
	1 new home	Count	23	31	16	5	75
		% of Total	8.1%	11.0%	5.7%	1.8%	26.5%
	2 new homes	Count	3	9	6	2	20
		% of Total	1.1%	3.2%	2.1%	.7%	7.1%
	3 new homes	Count	4	2	3		9
		% of Total	1.4%	.7%	1.1%		3.2%
	more than 3 new homes	Count	4	1	3	1	9
		% of Total	1.4%	.4%	1.1%	.4%	3.2%
Total		Count	68	103	89	23	283
		% of Total	24.0%	36.4%	31.4%	8.1%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * woodwork filled & sanded before painting Crosstabulation

			woodwork filled & sanded before painting				
			not important	quite important	very important	critically important	Total
number of new homes	none	Count	1	12	95	62	170
		% of Total	.4%	4.2%	33.6%	21.9%	60.1%
	1 new home	Count	2	6	32	35	75
		% of Total	.7%	2.1%	11.3%	12.4%	26.5%
	2 new homes	Count	1	1	9	9	20
		% of Total	.4%	.4%	3.2%	3.2%	7.1%
	3 new homes	Count		1	4	4	9
		% of Total		.4%	1.4%	1.4%	3.2%
	more than 3 new homes	Count		1	5	3	9
		% of Total		.4%	1.8%	1.1%	3.2%
Total		Count	4	21	145	113	283
		% of Total	1.4%	7.4%	51.2%	39.9%	100.0%

number of new homes * finish to tiling etc better than diy Crosstabulation

			finish to tiling etc better than diy				
			failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	18	42	73	37	170
		% of Total	6.4%	14.8%	25.8%	13.1%	60.1%
	1 new home	Count	13	15	34	13	75
		% of Total	4.6%	5.3%	12.0%	4.6%	26.5%
	2 new homes	Count	1	3	12	4	20
		% of Total	.4%	1.1%	4.2%	1.4%	7.1%
	3 new homes	Count		2	3	4	9
		% of Total		.7%	1.1%	1.4%	3.2%
	more than 3 new homes	Count	2	3	2	2	9
		% of Total	.7%	1.1%	.7%	.7%	3.2%
Total		Count	34	65	124	60	283
		% of Total	12.0%	23.0%	43.8%	21.2%	100.0%

number of new homes * finish to tiles etc better than diy Crosstabulation

			finish to tiles etc better than diy					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count		1	7	83	79	170
		% of Total		.4%	2.5%	29.3%	27.9%	60.1%
	1 new home	Count			1	37	37	75
		% of Total			.4%	13.1%	13.1%	26.5%
	2 new homes	Count			2	7	11	20
		% of Total			.7%	2.5%	3.9%	7.1%
	3 new homes	Count				4	5	9
		% of Total				1.4%	1.8%	3.2%
	more than 3 new homes	Count	1		1	5	2	9
		% of Total	.4%		.4%	1.8%	.7%	3.2%
Total		Count	1	1	11	136	134	283
		% of Total	.4%	.4%	3.9%	48.1%	47.3%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * external works useable and secure Crosstabulation

			external works useable and secure				
			failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	40	49	68	13	170
		% of Total	14.1%	17.3%	24.0%	4.6%	60.1%
	1 new home	Count	18	28	24	5	75
		% of Total	6.4%	9.9%	8.5%	1.8%	26.5%
	2 new homes	Count	2	11	5	2	20
		% of Total	.7%	3.9%	1.8%	.7%	7.1%
	3 new homes	Count	3		4	2	9
		% of Total	1.1%		1.4%	.7%	3.2%
	more than 3 new homes	Count	3		5	1	9
		% of Total	1.1%		1.8%	.4%	3.2%
Total		Count	66	88	106	23	283
		% of Total	23.3%	31.1%	37.5%	8.1%	100.0%

number of new homes * external works useable and secure Crosstabulation

			external works useable and secure					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	1	1	11	85	72	170
		% of Total	.4%	.4%	3.9%	30.0%	25.4%	60.1%
	1 new home	Count	1		5	32	37	75
		% of Total	.4%		1.8%	11.3%	13.1%	26.5%
	2 new homes	Count			2	10	8	20
		% of Total			.7%	3.5%	2.8%	7.1%
	3 new homes	Count			1	5	3	9
		% of Total			.4%	1.8%	1.1%	3.2%
	more than 3 new homes	Count			1	4	4	9
		% of Total			.4%	1.4%	1.4%	3.2%
Total		Count	2	1	20	136	124	283
		% of Total	.7%	.4%	7.1%	48.1%	43.8%	100.0%

number of new homes * heating allows use of whole house Crosstabulation

			heating allows use of whole house					
			.00	failed to meet	partialy failed to meet	meeting	exceeding	Total
number of new homes	none	Count	3	13	12	77	65	170
		% of Total	1.1%	4.6%	4.2%	27.2%	23.0%	60.1%
	1 new home	Count	2	6	10	32	25	75
		% of Total	.7%	2.1%	3.5%	11.3%	8.8%	26.5%
	2 new homes	Count			3	10	7	20
		% of Total			1.1%	3.5%	2.5%	7.1%
	3 new homes	Count		1		3	5	9
		% of Total		.4%		1.1%	1.8%	3.2%
	more than 3 new homes	Count			1	5	3	9
		% of Total			.4%	1.8%	1.1%	3.2%
Total		Count	5	20	26	127	105	283
		% of Total	1.8%	7.1%	9.2%	44.9%	37.1%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * heating allows use of whole house Crosstabulation

			heating allows use of whole house					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	3	1	4	61	101	170
		% of Total	1.1%	.4%	1.4%	21.6%	35.7%	60.1%
	1 new home	Count	1	1	1	30	42	75
		% of Total	.4%	.4%	.4%	10.6%	14.8%	26.5%
	2 new homes	Count				7	13	20
		% of Total				2.5%	4.6%	7.1%
	3 new homes	Count				2	7	9
		% of Total				.7%	2.5%	3.2%
	more than 3 new homes	Count				5	4	9
		% of Total				1.8%	1.4%	3.2%
Total		Count	4	2	5	105	167	283
		% of Total	1.4%	.7%	1.8%	37.1%	59.0%	100.0%

number of new homes * energy efficient, lower running costs Crosstabulation

			energy efficient, lower running costs					
			not answered	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	7	7	17	96	43	170
		% of Total	2.5%	2.5%	6.0%	33.9%	15.2%	60.1%
	1 new home	Count	2	2	8	42	21	75
		% of Total	.7%	.7%	2.8%	14.8%	7.4%	26.5%
	2 new homes	Count		1	2	12	5	20
		% of Total		.4%	.7%	4.2%	1.8%	7.1%
	3 new homes	Count			1	4	4	9
		% of Total			.4%	1.4%	1.4%	3.2%
	more than 3 new homes	Count			3	3	3	9
		% of Total			1.1%	1.1%	1.1%	3.2%
Total		Count	9	10	31	157	76	283
		% of Total	3.2%	3.5%	11.0%	55.5%	26.9%	100.0%

number of new homes * energy efficient, lower running costs Crosstabulation

			energy efficient, lower running costs					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	2	1	3	69	95	170
		% of Total	.7%	.4%	1.1%	24.4%	33.6%	60.1%
	1 new home	Count		1	2	33	39	75
		% of Total		.4%	.7%	11.7%	13.8%	26.5%
	2 new homes	Count			1	7	12	20
		% of Total			.4%	2.5%	4.2%	7.1%
	3 new homes	Count				2	7	9
		% of Total				.7%	2.5%	3.2%
	more than 3 new homes	Count				3	6	9
		% of Total				1.1%	2.1%	3.2%
Total		Count	2	2	6	114	159	283
		% of Total	.7%	.7%	2.1%	40.3%	56.2%	100.0%

Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * low maintenance components Crosstabulation

			low maintenance components					
			not answered or too soon to say	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	7	6	22	108	27	170
		% of Total	2.5%	2.1%	7.8%	38.2%	9.5%	60.1%
	1 new home	Count	2	6	13	43	11	75
		% of Total	.7%	2.1%	4.6%	15.2%	3.9%	26.5%
	2 new homes	Count	1	2	3	11	3	20
		% of Total	.4%	.7%	1.1%	3.9%	1.1%	7.1%
	3 new homes	Count		1		7	1	9
		% of Total		.4%		2.5%	.4%	3.2%
	more than 3 new homes	Count			3	5	1	9
		% of Total			1.1%	1.8%	.4%	3.2%
Total		Count	10	15	41	174	43	283
		% of Total	3.5%	5.3%	14.5%	61.5%	15.2%	100.0%

number of new homes * low maintenance components Crosstabulation

			low maintenance components					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	3	3	24	82	58	170
		% of Total	1.1%	1.1%	8.5%	29.0%	20.5%	60.1%
	1 new home	Count			11	40	24	75
		% of Total			3.9%	14.1%	8.5%	26.5%
	2 new homes	Count		1	4	7	8	20
		% of Total		.4%	1.4%	2.5%	2.8%	7.1%
	3 new homes	Count				4	5	9
		% of Total				1.4%	1.8%	3.2%
	more than 3 new homes	Count				5	4	9
		% of Total				1.8%	1.4%	3.2%
Total		Count	3	4	39	138	99	283
		% of Total	1.1%	1.4%	13.8%	48.8%	35.0%	100.0%

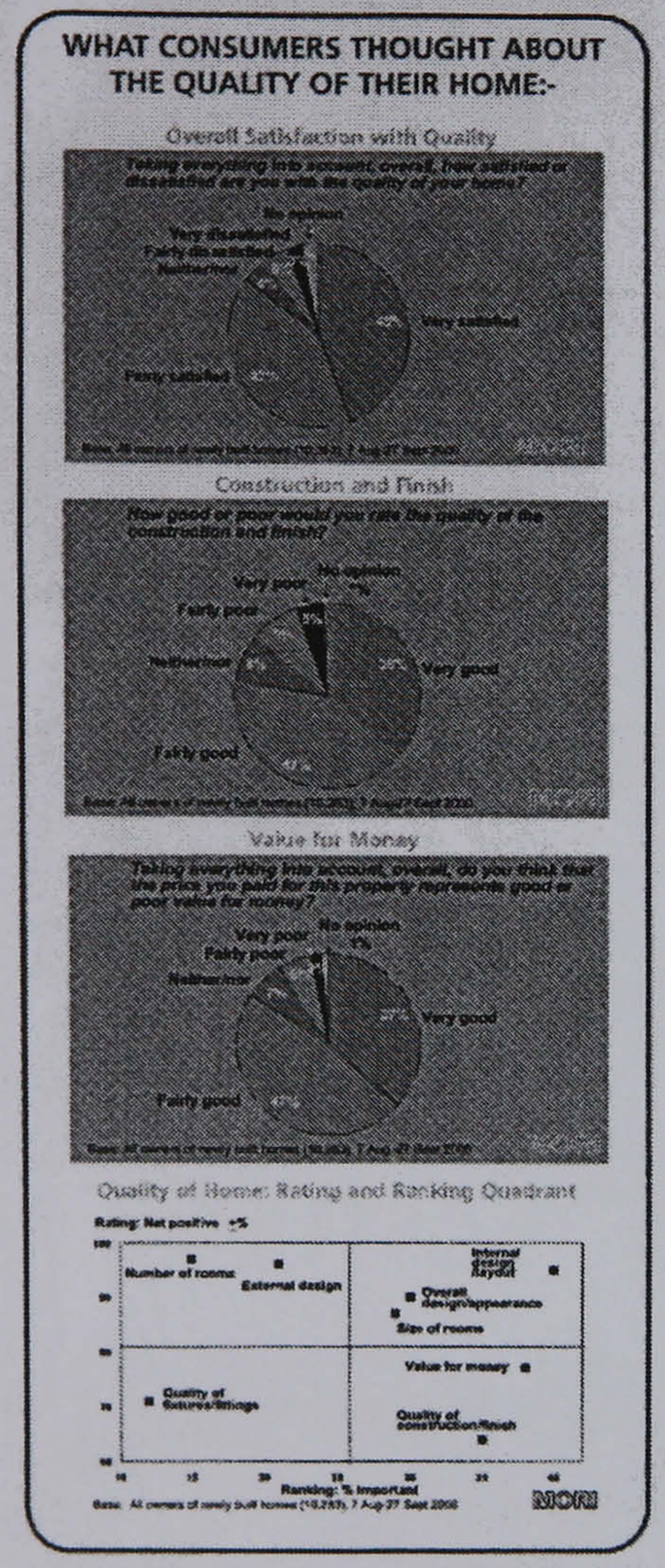
number of new homes * problem free experience Crosstabulation

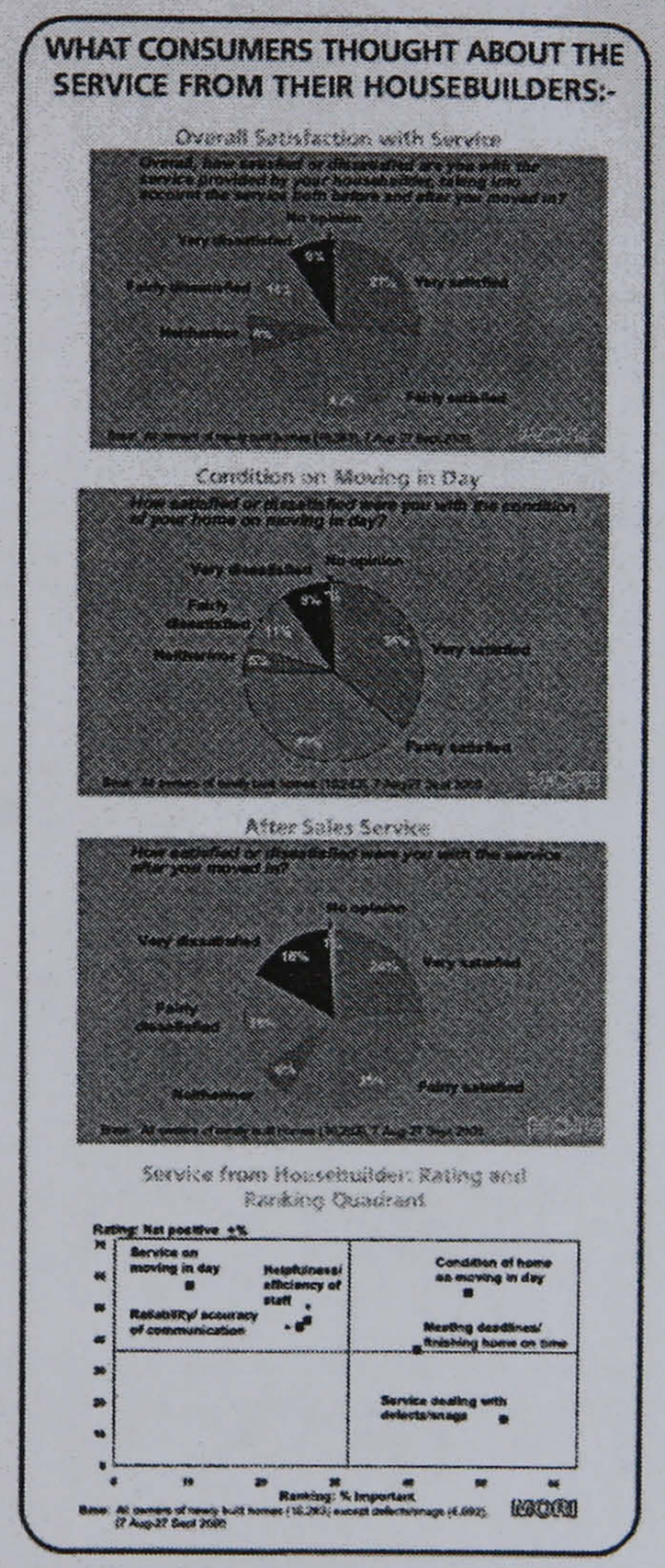
			problem free experience					
			.00	failed to meet	partially failed to meet	meeting	exceeding	Total
number of new homes	none	Count	1	38	45	63	23	170
		% of Total	.4%	13.4%	15.9%	22.3%	8.1%	60.1%
	1 new home	Count		23	23	23	6	75
		% of Total		8.1%	8.1%	8.1%	2.1%	26.5%
	2 new homes	Count		4	7	6	3	20
		% of Total		1.4%	2.5%	2.1%	1.1%	7.1%
	3 new homes	Count		5	1	2	1	9
		% of Total		1.8%	.4%	.7%	.4%	3.2%
	more than 3 new homes	Count		2	4	3		9
		% of Total		.7%	1.4%	1.1%		3.2%
Total		Count	1	72	80	97	33	283
		% of Total	.4%	25.4%	28.3%	34.3%	11.7%	100.0%

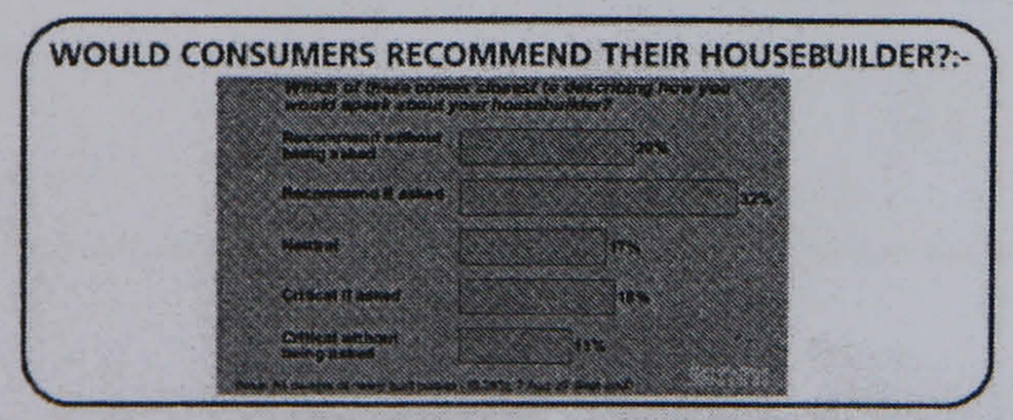
SPSS tables – Main questionnaire Survey: page 14 of 14
Cross-tabulations Number of new homes against Expectations and Importance

number of new homes * problem free experience Crosstabulation

			problem free experience					
			.00	not important	quite important	very important	critically important	Total
number of new homes	none	Count	2	2	14	71	81	170
		% of Total	.7%	.7%	4.9%	25.1%	28.6%	60.1%
	1 new home	Count		2	3	36	34	75
		% of Total		.7%	1.1%	12.7%	12.0%	26.5%
	2 new homes	Count				14	6	20
		% of Total				4.9%	2.1%	7.1%
	3 new homes	Count			1	3	5	9
		% of Total			.4%	1.1%	1.8%	3.2%
	more than 3 new homes	Count			1	4	4	9
		% of Total			.4%	1.4%	1.4%	3.2%
Total		Count	2	4	19	128	130	283
		% of Total	.7%	1.4%	6.7%	45.2%	45.9%	100.0%







New Homes National Customer Satisfaction Survey 2000

The Housing Forum

RETHINKING CONSTRUCTION

This leaflet sets out the findings of the first national customer satisfaction survey of the UK's top housebuilders. It reveals that the vast majority of owners of newly built homes are satisfied with their home, but are less impressed with the service provided by their housebuilder.

The survey was jointly funded by the Housing Forum and the Department of the Environment Transport and the Regions. More than 10,000 people who bought a new house between January 1999 and March 2000 were interviewed by the market research agency MORI.

The principal aims of the survey were to:-

- Allow consumers a more informed choice
- Enable housebuilders to measure and improve customer satisfaction performance
- Allow comparisons between housebuilders

This survey represents the first independent research into customer satisfaction within the housing industry by individual housebuilder and has provided invaluable information for both the consumer and housebuilder.

The survey will be repeated next year.

See inside for the Housebuilders Rating Table which shows how consumers rate individual housebuilders

The Housebuilders Rating Table can be accessed at the Housing Forum Website –

For more information about the national customer satisfaction survey results please contact: Mehban Chowdery at The Housing Forum on 020 7691 0220

KEY FINDINGS

- 87% are satisfied with their new home ; fewer (70%) are satisfied with the service from their housebuilder.
- Homebuyers rank value for money, the quality of the construction and finish, and the internal design and layout as the single most important issues.
- 97% are satisfied with the internal design and layout of their new home.
- The condition on moving in day, dealing with defects and snags, and meeting deadlines are most important.
- 81% reported housing defects and snags with their home and 48% claimed that there were more defects than they would have expected.
- More people (52%) would recommend their housebuilder than would be critical of them (32%).
- Despite 55% saying they would want a newly built home again if they moved, only 29% believe new homes are better built than old ones.
- There are some variations in satisfaction levels across the regions of Great Britain. For example, housebuyers in Eastern England are the most likely to recommend their housebuilder.
- The Housebuilder Rating Table provides comparable satisfaction rates for individual housebuilders. It illustrates how the largest 29 housebuilders perform on the issues which homebuyers rank as most important.

National Customer Satisfaction Survey 2000

Housebuilder Rating Table

		QUALITY OF HOME				SERVICE FROM HOUSEBUILDER		
	Sample size	Overall Satisfaction	Construction and finish	Value for money	Likelihood of recommending housebuilder	Overall Satisfaction	Condition on moving in day	After-sales service
350	Alfred McAlpine	★★	★★	★	★★	★★	★★	★★
116	Allen Homes	★★	❑	❑	❑	❑	★	❑
350	Barratt Homes	★	★	★	★	★	★	★
350	Beazer Group	★	★	★★	★	★	★	★
350	Bellway Homes	★★	★★	★★	★★	★★	★★	★★
113	Ben Bailey Homes	★★★	❑	❑	★★	❑	★★	★
98	Berkeley Homes	★★★	★★★	❑	❑	★★★	★★★	❑
152	Bett Brothers	★★	★★	★★	★★	★★	★★	★★
45	Birch Homes	❑	❑	❑	❑	❑	❑	❑
350	Bovis Homes	★★	★★	★★	★★	★★★	★★	★★★
350	Bryant Homes	★★	★★	★★	★★	★★	★★	★★
67	Cala	❑	★★★	❑	❑	❑	★★	★★★
66	Cecil M Yuill	❑	❑	❑	★★	❑	❑	❑
72	Charles Church	★	★	★	★	★	★	★
69	Copthorn Homes	❑	❑	❑	❑	❑	★★	❑
84	Countryside Properties	★	★	★	★	★	★	❑
308	Crest Homes	★★★	★★★	★★★	★★★	★★★	★★★	★★★
131	Croudace	★★★	★★★	★★	★★★	★★★	★★★	★★★
76	Cussins Homes	★	❑	❑	★	★	★	★
87	David McLean Homes	★	★	★	★	★	★	★
350	David Wilson Homes	★★★	★★★	★★	★★★	★★	★★	★★
247	Fairclough Homes	★★	★★	★★	★★	★★	★★	★★
165	Fairview New Homes	❑	★	❑	★★	★★	★★	★★★
165	Haslam Homes	❑	★★	❑	★★	★★	★★	❑
82	Harwood Homes	★★★	★★★	★★★	★★★	★★★	★★★	★★★
112	Henry Boot Homes	★	★	❑	★	★	★	★
324	J S Bloor	★★★	★★★	★★★	★★★	★★★	★★★	★★★
77	Jelson	★★★	★★★	★★★	★★★	★★★	★★★	★★★
99	Kier Residential [1]	★★★	★★★	❑	★★★	★★★	★★★	★★★
176	Laing Homes	★	★	❑	★	★★	❑	★★
86	Linden	❑	★★	❑	★	❑	★	❑
88	Lovell Partnerships	❑	★★	❑	❑	❑	★★	★★
89	Maunders	★	❑	❑	★	★	★	★
89	McCarthy and Stone	★★★	★★★	❑	★★★	★★★	★★★	★★★
350	McLean Homes	★★★	★★★	★★★	★★★	★★★	★★★	★★★
125	Midland and General	★★★	★★★	★★★	★★★	★★★	★★★	★★★
210	Miller Homes	★	★★	★★	★	★	❑	★
76	Morris Homes	❑	❑	❑	❑	❑	★	★
96	Northcountry Homes Group	❑	❑	❑	❑	★★	★★	★★
78	P E Jones	❑	❑	❑	❑	❑	★	❑
350	Persimmon Homes	★★	★★	★★★	★★	★	★	★
314	Prowting	★★	★★	★★	★★★	★★	★★	★★★
350	Redrow Homes	★★★	★★★	★★★	★★★	★★★	★★★	★★★
117	Rivermead Homes	❑	★★	★★★	★★	❑	❑	❑
103	Robert Hitchins	★★★	★★	★★★	❑	★★	❑	❑
31	Roland Bardsley	★★★	★★★	❑	★★★	★★★	★★★	★★★
75	Shepherd Homes	❑	❑	❑	❑	★	❑	★
87	Stamford Homes	❑	★★	❑	★★	❑	★★	★★
187	Stewart Milne Group	★★	★★	★	★★	★★	★★	★★
40	Swan Hill Homes	❑	★★★	❑	❑	❑	❑	❑
160	Tay Homes	★	★	❑	★	★	★	★
324	Taywood Homes	★★	★★	★★	★★	★★	★★	★★
32	Trencherwood Homes	❑	❑	❑	❑	❑	❑	❑
47	Tulloch Homes	❑	❑	❑	❑	❑	❑	❑
285	Wainhomes	★	★★	★★	★	★	★	★
45	Ward Homes	★★★	★★★	★★★	★★★	★★★	★★★	❑
350	Westbury Homes	★★	★	★★	★	★★	★★	★★
350	Wilcon Homes	★★	★★	★★★	★★	★★	★★	★★
350	Wimpey Homes	★★★	★★★	★★	★★★	★★★	★★★	★★★

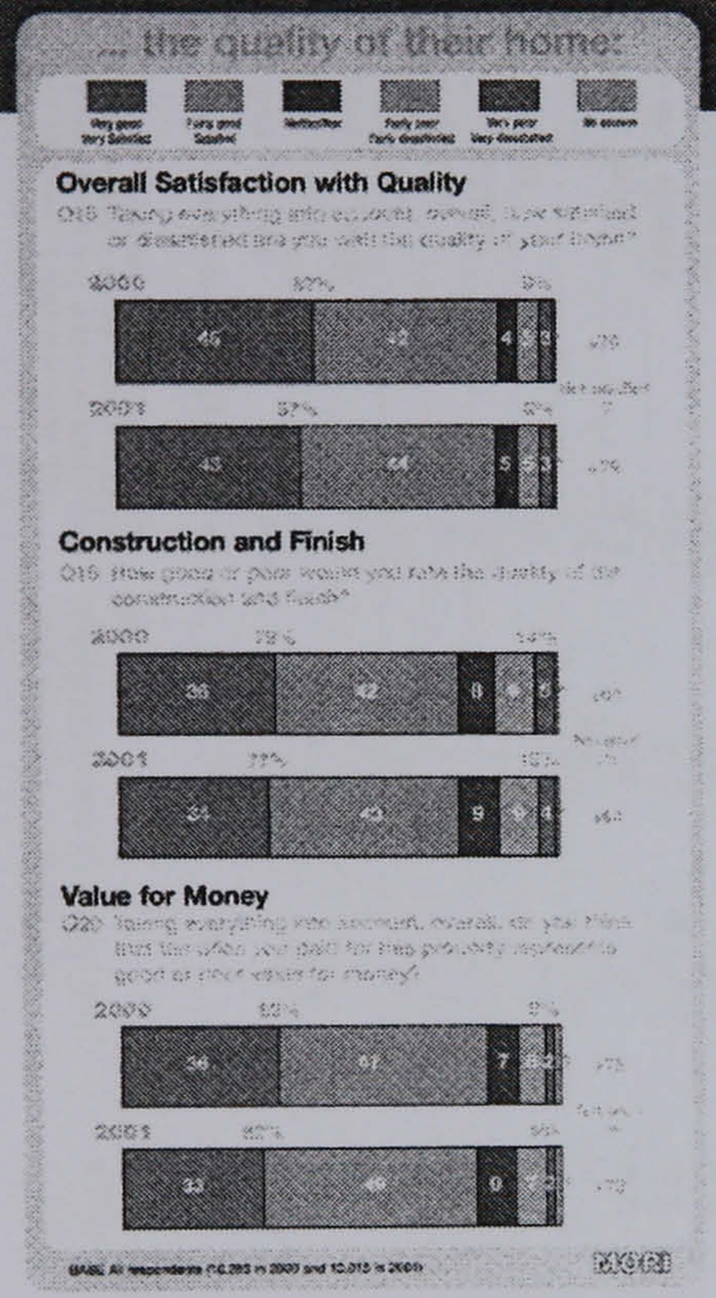
[1] includes Bellwinch Homes and Twigden Homes

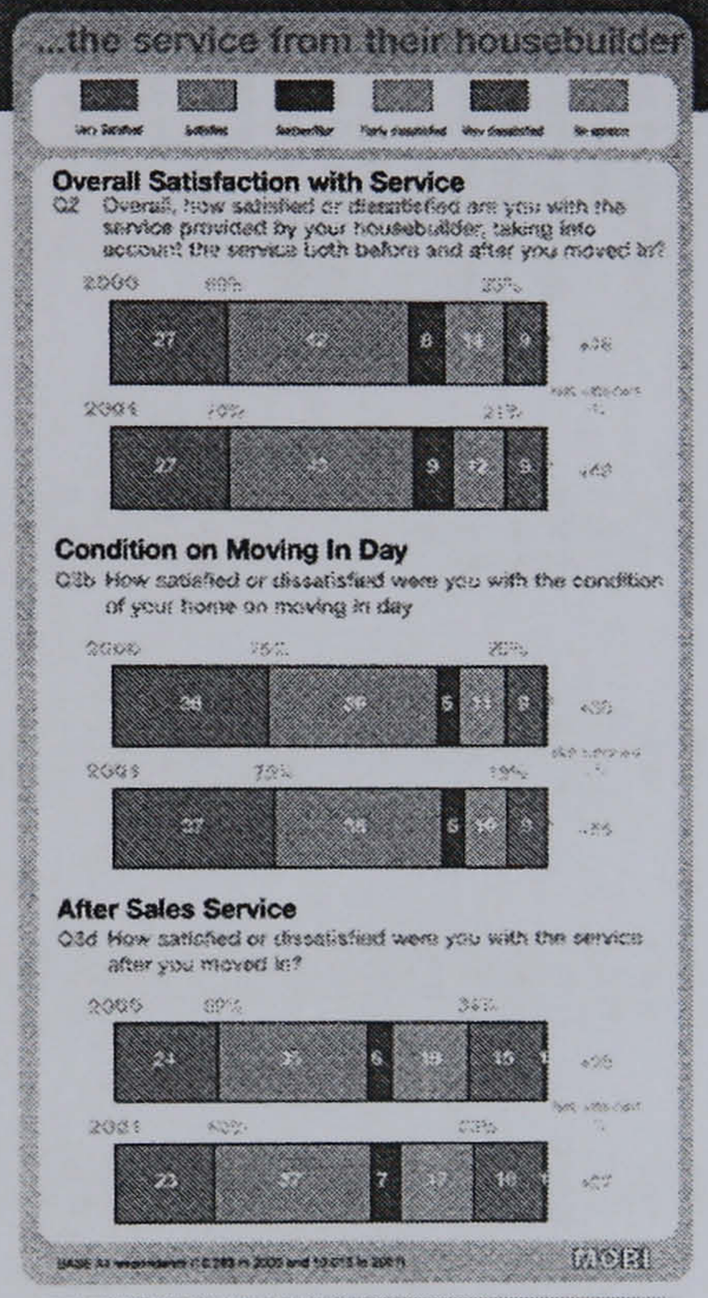
Base: all respondents (10,283)

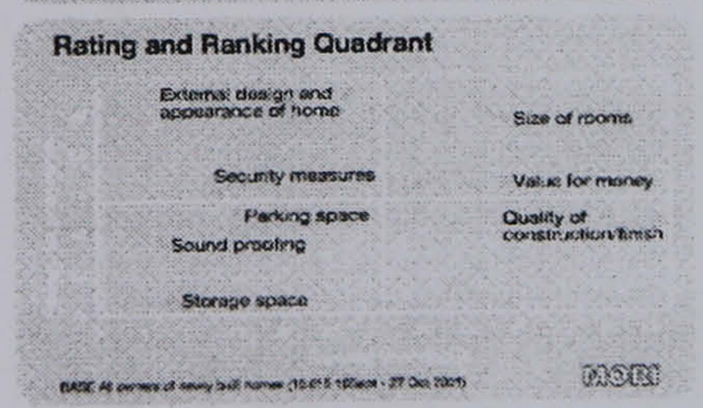
KEY ★★★ Above Industry Average ★★ Industry Average ★ Below Industry Average ❑ Unable to determine Rating at 95% Confidence Level

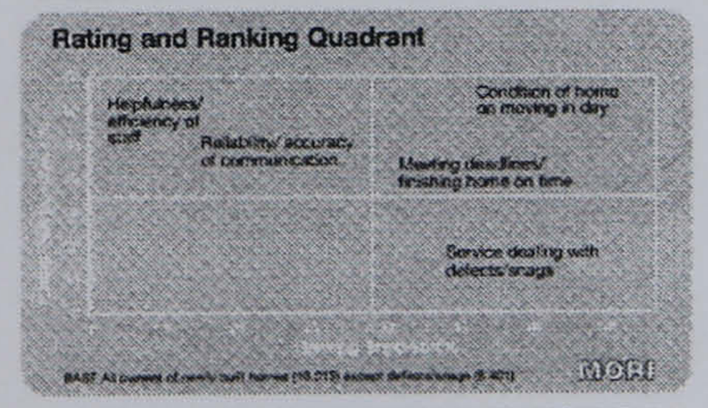
MORI Ratings based on a telephone survey with a representative sample of 10,283 owners of newly built homes selected from databases supplied by NHBC and Zurich. Fieldwork conducted between 7th August and 27th September 2000

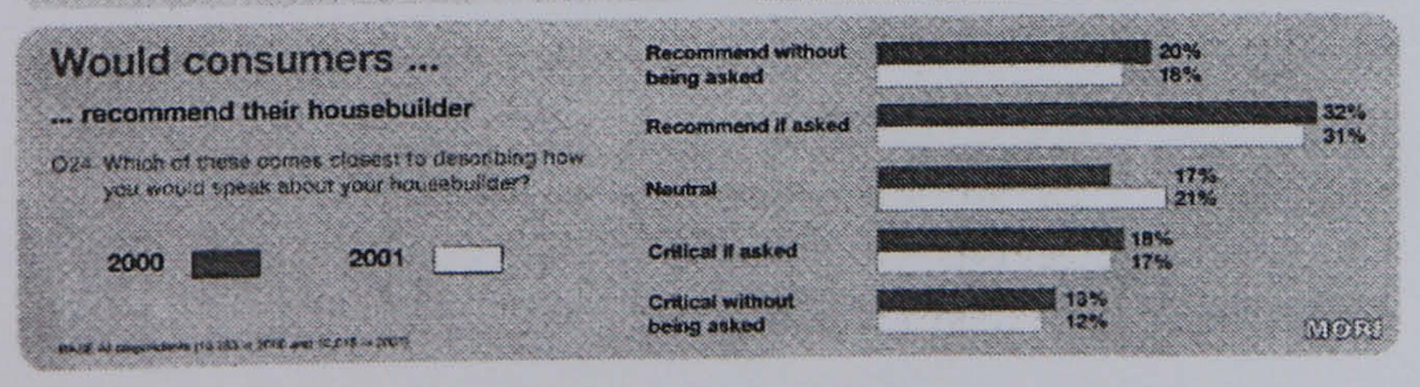
What Consumers thought about ...











National Customer Satisfaction Survey 2001

The Housing Forum — RETHINKING CONSTRUCTION

New Home Owners Survey

The 2001 National Customer Satisfaction Survey is the second survey conducted among owners of newly built homes; the first was conducted in 2000.
Commissioned independently by the Housing Forum and sponsored by the DTI, the survey is designed to provide findings that will allow consumers a more informed choice on their prospective purchase, and to enable housebuilders to measure as well as improve their customer satisfaction performance.

KEY FINDINGS

Overall

In general, there is very little change between findings for the two surveys undertaken by MORI. This is reflected in the full star ratings allocated in the Housebuilder Rating Tables for both years; the majority of builders have obtained the same ratings in 2001 as 2000. However, slightly more have a higher full star rating on whether their owners would recommend them, while fewer have higher full star ratings on value for money, overall service from the housebuilder and on after-sales service.

While housebuilders may have implemented changes as a result of the 2000 survey, it is unlikely that the impact of these will have been felt in time to be recorded in 2001. However, this impact should become clearer in future National Customer Satisfaction Surveys.

When comparing findings for the housebuilding industry between the two surveys, due to the large sample sizes (over 10,000 respondents), only small differences are required to indicate a significant change (between ±0.8 and ±1.4 percentage points).

Quality of the Home

Nearly nine in ten (87%) are satisfied with their new home – the same as findings for 2000.

Attitudes towards the majority of aspects of the home asked about – construction and finish, external design and appearance, storage space and security measures along with overall value for money – are all positive and relatively unchanged from 2000. In contrast, significantly fewer are satisfied with sound proofing (75% compared with 77% in 2000).

Service Provided by Housebuilders

Seven in ten are satisfied with the service from their housebuilder. However, while overall this is similar to 2000 (69%), there does appear to have been some improvement, with significantly fewer dissatisfied with the service provided (21% compared with 23% in 2000).

Levels of satisfaction at all stages of the service provided by the housebuilder are similar to 2000, with the exception of during the buying process, where significantly fewer are satisfied (83% compared with 85% in 2000). Attitudes towards staff are also largely similar, although satisfaction with after-sales staff has increased (59% compared with 57%).

More owners have had housing defects and snags with their home (84% compared with 81% in 2000). However, satisfaction with the overall service provided in dealing with these problems is unchanged (53% versus 54% in 2000).

Owner Attitudes

Compared with findings for 2000, owners are less positive towards newly built homes in 2001.

Whilst more people would recommend their housebuilder than would be critical of them (49% versus 29%), compared with 2000, this level of recommendation is significantly lower (49% compared with 52% in 2000).

In addition, significantly fewer would want another newly built home or one from the same housebuilder (54% compared with 56% in 2000). Fewer are also positive about the build quality of new homes compared with old ones (22% compared with 25% in 2000).

See inside for the Housebuilders Rating Table which shows how consumers rate individual housebuilders. The Housebuilders Rating Table can be accessed at the Housing Forum Website - www.thehousingforum.org.uk

For more information about the national customer satisfaction survey results please contact : Mehban Chowdery at The Housing Forum on 020 7681 0220

Results for the 2000 survey were published at the end of Feb 2001 and include owners who bought their home between Jan 1999 and 31 March 2000

National Customer Satisfaction Survey 2001
Housebuilder Rating Table

Sample Size		Quality of Home			Likelihood of recommending housebuilder	Service from Housebuilder		
		Overall satisfaction	Construction and finish	Value for money		Overall satisfaction	Condition on moving in day	After-sales service
300	Alfred McAlpine	★★	★★	★★	★★★	★★	★★	★★
300	Barratt Homes	★	★	★	★	★	★	★
300	Beazer Group	★★	★★	★★	★	★	★★	★
300	Bellway Homes	★★	★★	★★	★★	★★	★★	★★
120	Ben Bailey Homes	☆☆	★★	★★★	★★★	★★	★★	☆
79	Berkeley Homes	☆☆	★★★	☆☆	☆☆☆	☆☆	★★★	☆☆☆
279	Bett Homes	★★★	★★★	★★	★★★	★★★	★★★	★★★
300	Bloor Homes	★★★	★★★	★★★	★★★	★★★	★★★	★★★
300	Bovis Homes	★★	★★	☆☆	★★	★★★	★★	★★★
300	Bryant Homes	★★★	★★	★★	★★★	★★	★★	★★
141	Cala	★★★	★★★	☆	★★★	★★★	★★	★★★
47	Cecil M Yuill	☆	☆	☆	☆☆	☆☆	☆	☆☆
102	Charles Church	★	☆	★	★	★	★	★
56	Copthorn Homes	☆	☆	☆☆	☆☆	☆	★	☆☆
88	Countryside Properties	☆☆	☆☆	☆	★★	★★	☆☆	★★
239	Crest Homes	★★★	★★★	★★	★★★	★★★	★★★	★★★
144	Croudace	★★★	★★★	★★★	★★★	★★★	★★★	★★★
73	David McLean Homes	★	★	☆☆	★	★	★	★
300	David Wilson Homes	★★	★★★	★★	★★★	★★	★★	★★
272	Fairclough Homes	★★	★★	★★	★★	★★	★★	★★
250	Fairview New Homes	★	★	★	★	★	★	★★
200	Haslam Homes	★★	☆☆☆	★★★	★★	★★	☆☆☆	★★
149	Henry Boot Homes	★	★	★★★	★	★	★	★
107	Jelson	★★★	★★★	★★★	★★★	★★★	★★★	★★★
138	Jones Homes	★★★	☆☆	★★★	★★	★★	★★	★★
200	Kier Residential[1]	★★	★★	★	★★	★★	★	★★
200	Laing Homes	☆☆	★★	★	★★★	★★	★★	★★★
90	Linden	☆☆	☆☆	☆	★★	☆	☆	☆☆
200	Lovell Partnerships	★★	★★	★★★	★★	★★	★★	★★
33	M J Gleeson	☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆	☆☆☆	☆☆
211	McCarthy & Stone	★★★	★★★	☆	★★★	★★★	★★★	★★★
300	McLean Homes	★★★	★★★	★★★	★★★	★★	★★★	★★
113	Midland and General	★★★	★★★	★★★	★★★	★★★	★★★	★★★
300	Miller Homes	★	★	★★	★	★	★	★
165	Morris Homes	☆	★	★★★	★	★	★	★
109	North Country Homes	☆☆	★	☆☆	★★	☆☆	★★	★★
300	Persimmon Homes	★★	★★	★★	★★	☆	★★	★
300	Prowting	★★	★★	★★	★★	★★	★★	★★
300	Redrow Homes	★★★	★★★	★★	★★★	★★	★★★	★★
73	Rialto Homes	☆☆	☆	☆☆	★	☆	★	☆☆
60	Rivermead Homes	☆☆☆	☆☆☆	★★★	★★★	★★★	☆☆☆	☆☆☆
60	Robert Hitchins	☆☆☆	☆☆	★★★	☆☆	☆☆	☆☆☆	☆☆
32	Roland Bardsley	☆☆☆	☆☆☆	☆☆☆	★★★	☆☆☆	☆☆☆	☆☆☆
122	Shepherd Homes	☆☆☆	★★	★★★	★★	☆☆	☆☆	☆☆
89	Stamford Homes	☆☆	★★	★★★	★★	★★	★★★	★★
255	Stewart Milne	★★	★★	★	★★	★★	★★	★★
30	Swan Hill	☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆
200	Tay Homes	★	★	★★	★	★	★	★
82	Tulloch Homes	☆☆☆	★★★	☆☆☆	☆☆☆	☆☆☆	★★	☆☆☆
289	Wain Homes	★	★	★★	★	★	★	★
68	Ward Homes	☆☆☆	★★★	☆☆☆	★★★	★★★	★★	★★★
300	Westbury Homes	★★	★★	★★	★	★	★	★
300	Wilcon Homes	★	★★	★★	★	★	★	★
300	Wimpey Homes	★★★	★★★	★	★★★	★★★	★★★	★★★

[1] includes Bellwinch Homes and Twigden Homes

Base: All respondents (10,015)

MORI Ratings based on a telephone survey with a representative sample of 10,015 owners of newly built homes selected from databases supplied by NHBC and Zurich. Fieldwork conducted between 10th September and 27th October 2001

KEY	Above industry average	Industry average	Below industry average
Statistically at 95% confidence level	★★★	★★	★
Less than 95% confidence level	☆☆☆	☆☆	☆

What consumers thought about...

MORI Social Research Institute

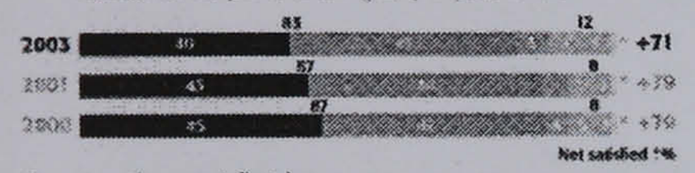
Base: All respondents (9,913 in 2003, 10,015 in 2001 and 10,283 in 2000) Source: MORI

Key: Very satisfied; Fairly satisfied; Neither/nor; Fairly dissatisfied; Very dissatisfied; No opinion

...the quality of the home

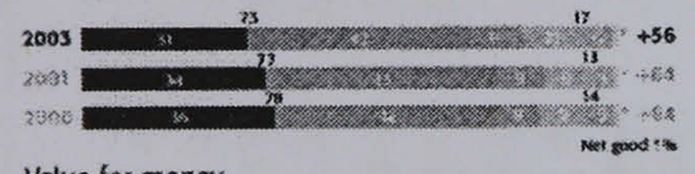
Overall satisfaction with quality

Q15 Taking everything into account, overall, how satisfied or dissatisfied are you with the quality of your home?



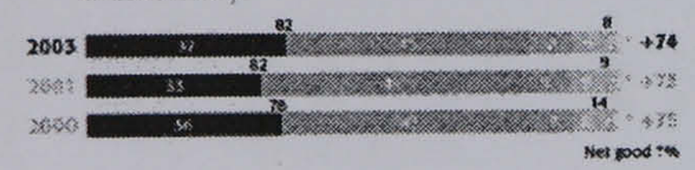
Construction and finish

Q16a How good or poor would you rate the quality of the construction and finish?

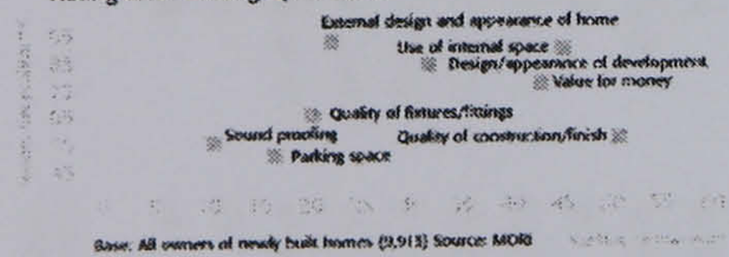


Value for money

Q21 Taking everything into account, overall, do you think that the price you paid for this property represents good or poor value for money?



Rating and Ranking Quandrant

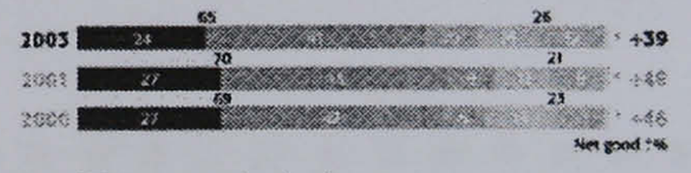


Base: All owners of newly built homes (9,913) Source: MORI

...the service from their housebuilder

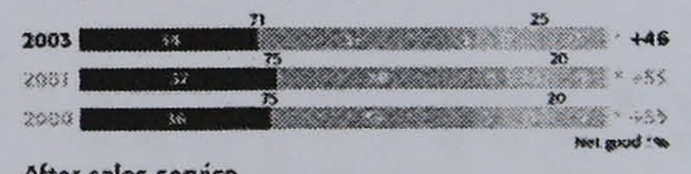
Overall satisfaction with service

Q2 Overall, how satisfied or dissatisfied are you with the service provided by your housebuilder, taking into account the service both before and after you moved in?



Condition on moving in day

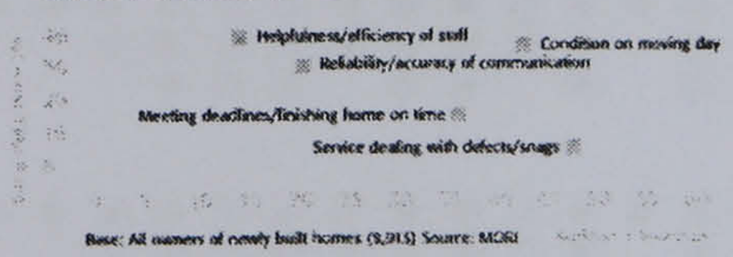
Q3d How satisfied or dissatisfied were you with the condition of your home on moving in day?



After sales service

Q3d How satisfied or dissatisfied were you with the service after you moved in?

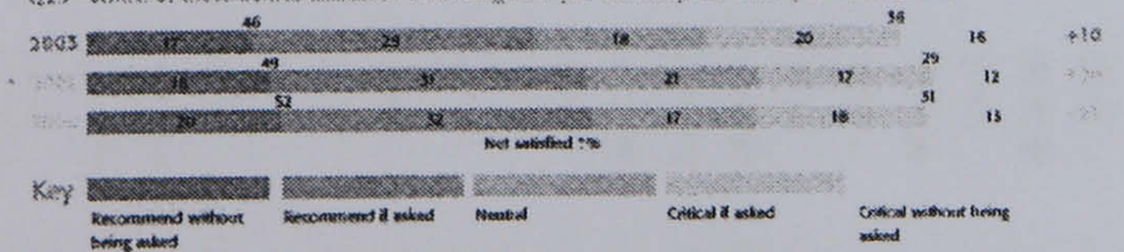
Rating and Ranking Quandrant



Base: All owners of newly built homes (9,913) Source: MORI

Would consumers... recommend their housebuilder

Q29 Which of these comes closest to describing how you would speak about your housebuilder?



Office of the Deputy Prime Minister

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The Housing Forum

National Customer Satisfaction Survey 2003

New Home Owners Survey

The 2003 National Customer Satisfaction Survey is the third survey conducted among owners of newly built homes; previous surveys were conducted in 2001 and 2000. Commissioned independently by the Housing Forum – Constructing Excellence and sponsored by the DTI and ODPM, the survey is designed to provide an analysis of the trends of customer satisfaction within the private house building industry over the last three years and form a guide to advise consumers of the above average performers in the industry this year. In conjunction with the survey results the Housing Forum has produced a consumer guidance leaflet, **What you need to check when buying a newly built property – 10 top tips on key issues to consider.**

Key findings

Overall
In general, more recent change in findings is apparent than was seen between the first two surveys, with satisfaction levels slightly lower this year.

The star ratings allocated in the Housebuilder Rating Table show that while the ratings for some housebuilders remain unchanged, there has been some movement with more now getting higher star ratings than previously, particularly on overall satisfaction with the housebuilder and the condition of the home on moving in day. More also get higher ratings on recommendation of the housebuilder and overall satisfaction with the quality of the home.

When comparing findings for the housebuilding industry between surveys, due to the large sample sizes (over 10,000 respondents), only small differences are required to indicate a significant change (between +0.8 and +1.4 percentage points).

Quality of the Home
Over four in five (83%) are satisfied with their new home - a little lower than 2001 and 2000 (87% in both years).

Attitudes towards all aspects of the home asked about – construction and finish, fixtures and fittings, design and appearance of the development, external design and appearance of the home, use of internal space and parking space along with sound proofing – are all positive. Although these scores are generally lower than previously, and despite properties becoming more expensive, rating of value for money is unchanged.

Service Provided by Housebuilders
Nearly two-thirds (65%) are satisfied with the service from their housebuilder. Following trends towards satisfaction with the home, this finding is lower than in both 2001 and 2000.

Satisfaction with the service provided by housebuilders tends to decline over successive stages of the purchase process, although in all cases the majority remain positive. Views are most favourable during the buying process, lower on moving-in day, and least positive towards the after-sales service. Ratings of staff follow the same pattern, with those responsible for sales higher rated than customer care or after-sales staff.

Experience of defects and/or snags in the home has increased (90% compared with 84% in 2001 and 81% in 2000). However, satisfaction with the overall service provided in dealing with these problems remains positive (51% satisfied), and only slightly lower than previously (53% versus 54% in 2000).

Owner Attitudes
Attitudes towards newly built homes are very positive, although owners are generally less positive about their particular housebuilder. For example, almost all owners are pleased about buying the home they did (88%), and a majority (55%) would want another newly built one if they were to move again. However, fewer agree than disagree that they would want to buy another home from the same housebuilder (29% versus 41%). Similarly, while attitudes are favourable towards the design of newly built homes, they are less positive about the build quality compared with old ones (46% and 22% agree respectively).

Although more people would recommend their housebuilder than would be critical of them (with a positive net recommend balance of +10), this level of recommendation is lower than previously (+20 in 2001 and +21 in 2000).

MORI Social Research Institute

are made for the Housebuilder Rating Table on the Housing Forum website at www.housingforum.org.uk

CONSTRUCTING EXCELLENCE

HFCE1G-0104-v1.1

Results for the 2003 survey were published in February 2003 and included owners who bought their home between 1 April 2000 and 30 June 2001; results for the 2000 survey were published at the end of February 2001 and include owners who bought their home between 1 January 1998 and 31 March 2000.

Innovation ■ Best Practice ■ Productivity

National Customer Satisfaction Survey 2003 – Housebuilder Rating Table

Key	Above industry average	Industry average	Below industry average
Statistically at 95% confidence level	★★★	★★	★
Less than 95% confidence level	☆☆☆	☆☆	☆

MORI Social Research Institute

Ratings based on a telephone survey with a representative sample of owners of newly built homes selected from databases supplied by NHBC and Zurich. Fieldwork conducted between 15th October and 12th November 2003

Sample size		Quality of Home			Service from Housebuilder			
		Overall satisfaction	Construction and finish	Value for money	Likelihood of recommending housebuilder	Overall satisfaction	Condition on moving in day	After Sales service
600	Barratt Homes	★	★	★	★	★	★	★
600	Bellway Homes	★★	★★	★★	★★	★★	★★	★★
125	Ben Bailey Homes	☆☆☆	☆☆☆	☆☆☆	★★★	☆☆☆	★★★	☆☆☆
186	Berkeley Group	★★★	★★★	★★★	★★★	★★	★★★	★★★
238	Bett Homes	☆☆	☆☆	☆☆	★★	☆☆	☆☆	★
321	Bloor Homes	★★★	★★★	★★★	★★★	★★★	★★★	★★★
458	Bovis Homes	★★	★★	★★	★★	★★	★★	☆☆
603	Bryant Homes	★	★★	★★	★★	★★	★★	★
76	Cala	☆☆☆	★★★	★★★	★★★	★★★	★★★	★★★
84	Countryside Properties	☆☆	☆☆	☆☆	☆☆☆	☆☆	★★	☆☆
170	Crest Nicholson	★★★	★★★	★★★	★★★	★★★	★★★	★★★
75	Croudace	★★★	★★★	★★★	★★★	★★★	★★★	★★★
65	David McLean Homes	☆	☆	☆	★	★	★	★
600	David Wilson Homes	★★	★★	★★	★★	★★	★★	★★
215	Fairclough Homes	★★	★★	★★	☆☆☆	★★★	★★	★★
202	Fairview New Homes	★	★	★	★	★	☆☆	★★
603	George Wimpey	★★★	★★★	★★★	★★★	★★★	★★★	★★★
103	Haslam Homes	☆☆☆	☆☆	☆☆	☆☆	☆☆☆	☆☆	☆☆☆
95	Jelson	★★★	★★★	★★★	★★★	★★★	★★★	★★★
71	Jones Homes	☆☆☆	☆☆☆	☆☆☆	★★★	★★★	☆☆	★★★
232	Kier Residential	☆☆☆	☆☆☆	☆☆☆	★★	☆☆	☆☆	★
105	Linden	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆	★★★
96	Lovell	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆
193	McCarthy & Stone	★★★	★★★	★★★	★★★	★★★	★★★	★★★
396	Miller Homes	★★	★★	★★	★★	★★	★★	★★
186	Morris Homes	☆☆	☆	☆	★	★	★	★
113	North Country Homes[1]	☆	★	★	☆	★	★	☆
658	Persimmon Homes	★★	☆☆	☆☆	★	★★	★★	★
601	Redrow Homes	★★	★★	★★	★★	★★	★★	★★
45	Rialto Homes	☆	★	★	★	★	★	★
87	Shepherd Homes	☆☆	☆☆	☆☆	★★	☆☆	☆☆	☆☆
278	Stewart Milne	☆☆☆	☆☆☆	☆☆☆	☆☆☆	★★	☆☆☆	☆☆
30	Swan Hill	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆
77	Tulloch Homes	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆	☆
68	Ward Homes	★★★	☆☆☆	☆☆☆	★★★	★★★	☆☆☆	★★★
600	Westbury Homes	★★	★	★	★	★	★	★
604	Wilcon Homes[2]	★★	★	★	★	★	★	★

[1] Now part of Country & Metropolitan Plc
[2] Now Wilson Connolly part of Taylor Woodrow